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ABSTRACT

The curriculum guide offers a course of training in the fundamentals of mathematics as applied to baking. Problems specifically related to the baking trade are included to maintain a practical orientation. The course is designed to help the student develop proficiency in the basic computation of whole numbers, fractions, decimals, percentage, ratio and proportion, converting formulas, and costing formulas. Material is also included to increase mathematical skills in weights and measures, pricing and selling, purchasing of raw materials, handling cash, and wages and hours. (Author/NJ)

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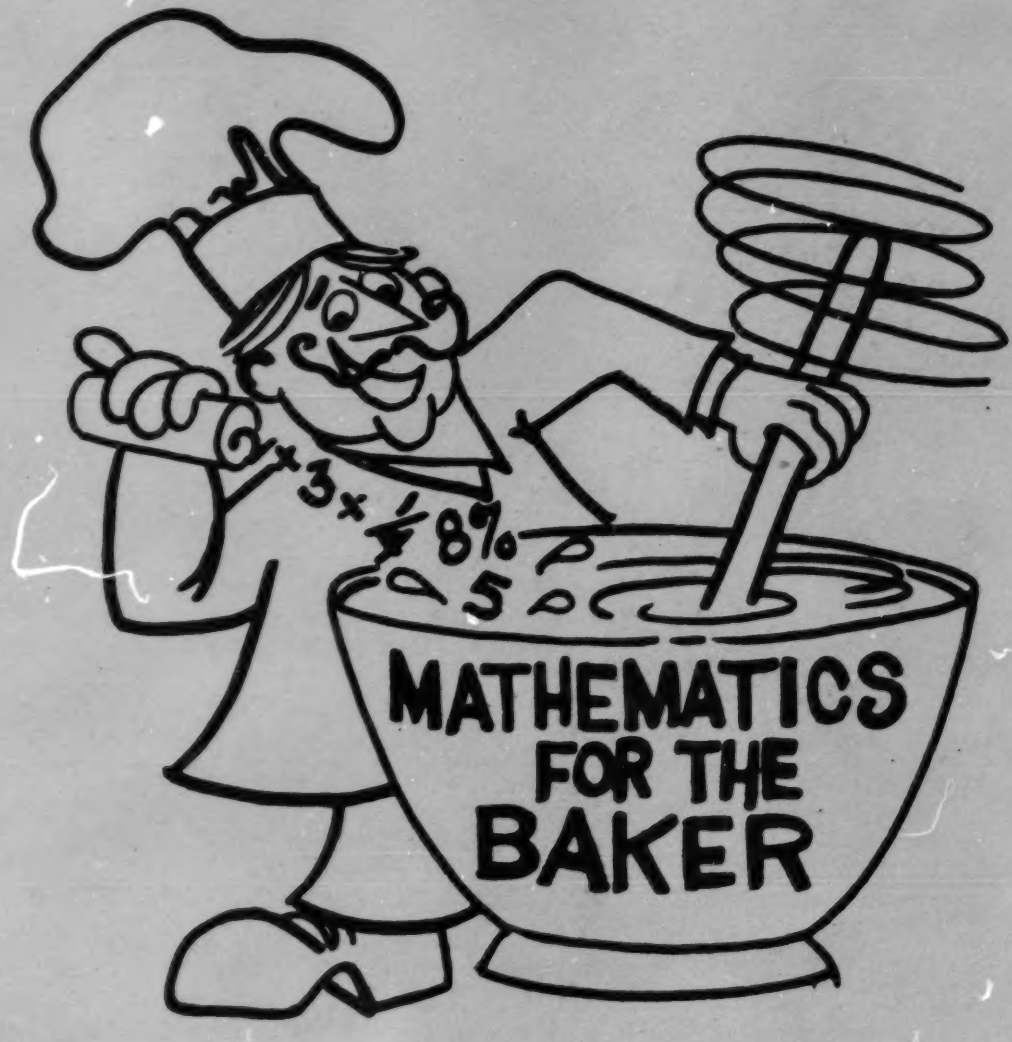


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CE008947

State of New Jersey
Department of Education
Division of Vocational Education

# MATHEMATICS FOR THE BAKER

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## TO THE TEACHER

The objective of this text is to offer a course of training in the fundamentals of mathematics as applied to baking. By developing related trade problems, we have exerted every effort to keep this material practical, so that the baking students can actually use it in their daily work.

To help a student to secure employment in the various types of bakery positions, we should help him to develop proficiency in adding, subtracting, multiplying, and dividing whole numbers, fractions, and decimals.

Related business knowledge should include mathematical skills in weights and measures, pricing and selling, purchasing of raw materials, and wages and hours.

With experience in the mathematical skills found in this text, the baking student should be mathematically able to take his or her place in any area in the baking industry.

## TO THE STUDENT

The objective of this text is to offer a course of training in the basic fundamentals of mathematics as applied to the baking trade.

To make a success of your position in the baking field, you need skill in *adding, subtracting, multiplying* and *dividing* of whole numbers, fractions, and decimals. Your business knowledge should also include mathematical skills in *weights and measures, pricing and selling, purchasing of raw materials,* and *wages and hours.*

By developing related trade problems, we have tried to keep this material practical, so that you can put it to immediate use in your daily work. With a thorough knowledge of the mathematical skills found in this text, you should be mathematically able to take your place in any area of the baking industry.

# ALL ABOUT NUMBERS

The *digits* are 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9.

These are all the numbers we have to use in our number system. All our numbers are made by combining these digits. When the digits are used in other ways, they represent specific values, such as 1 pound, 3 ounces, 5 dollars, or 30 cents.

Each number digit has its own value, but each digit can take on many different values. A digit may take on any number of values, because of the place it takes within a number.

We write numeral "1", and think of it as a single item; for instance, 1 ounce, 1 pound, 1 dollar or 1 baker.

We write the numeral "4", and we mean four things; for instance, 4 ounces, 4 pounds, 4 dollars or 4 bakers.

Let us look at the numeral "0". We know that by itself it represents *nothing*. But it can increase the value of other numbers, as in 10, 100, or 1,000. So now the zero becomes something of value.

WE ALL RECOGNIZE NUMBERS WHEN IN THE NUMERAL FORM . . .
VERY FEW OF US KNOW THEM WHEN WRITTEN OUT IN WORDS.

Let us get acquainted with the spelled-out numbers. We need to know them, because we must write them on checks if we go into business or just for our own personal affairs.

| NUMBERS WE KNOW | NUMBERS SPELLED OUT |
|---|---|
| 1 | ONE |
| 2 | TWO |
| 3 | THREE |
| 4 | FOUR |
| 5 | FIVE |
| 6 | SIX |
| 7 | SEVEN |
| 8 | EIGHT |
| 9 | NINE |
| 10 | TEN |
| 11 | ELEVEN |
| 12 | TWELVE |
| 13 | THIRTEEN |
| 14 | FOURTEEN |
| 15 | FIFTEEN |
| 16 | SIXTEEN |
| 17 | SEVENTEEN |
| 18 | EIGHTEEN |
| 19 | NINETEEN |

# TWENTIES AND THIRTIES

NOTE: A Hyphen (-) is used between the two parts of the spelled-out numbers from twenty-one to ninety-nine.

| NUMBERS WE KNOW | NUMBERS SPELLED OUT |
|---|---|
| 20 | TWENTY |
| 21 | TWENTY-ONE |
| 22 | TWENTY-TWO |
| 23 | TWENTY-THREE |
| 24 | TWENTY-FOUR |
| 25 | TWENTY-FIVE |
| 26 | TWENTY-SIX |
| 27 | TWENTY-SEVEN |
| 28 | TWENTY-EIGHT |
| 29 | TWENTY-NINE |
| 30 | THIRTY |
| 31 | THIRTY-ONE |
| 32 | THIRTY-TWO |
| 33 | THIRTY-THREE |
| 34 | THIRTY-FOUR |
| 35 | THIRTY-FIVE |
| 36 | THIRTY-SIX |
| 37 | THIRTY-SEVEN |
| 38 | THIRTY-EIGHT |
| 39 | THIRTY-NINE |

## FORTIES TO NINETIES

40 ⟷ FORTY

41, etc. ⟷ FORTY-ONE

50 ⟷ FIFTY

51, etc. ⟷ FIFTY-ONE

60 ⟷ SIXTY

61, etc. ⟷ SIXTY-ONE

70 ⟷ SEVENTY

71, etc. ⟷ SEVENTY-ONE

80 ⟷ EIGHTY

81, etc. ⟷ EIGHTY-ONE

90 ⟷ NINETY

91, etc. ⟷ NINETY-ONE

NOTE: The change in the way the following numbers are spelled-out . . .

THE HYPHEN IS NOT USED.

100 ⟷ ONE HUNDRED

101, etc. ⟷ ONE HUNDRED ONE

200 ⟷ TWO HUNDRED

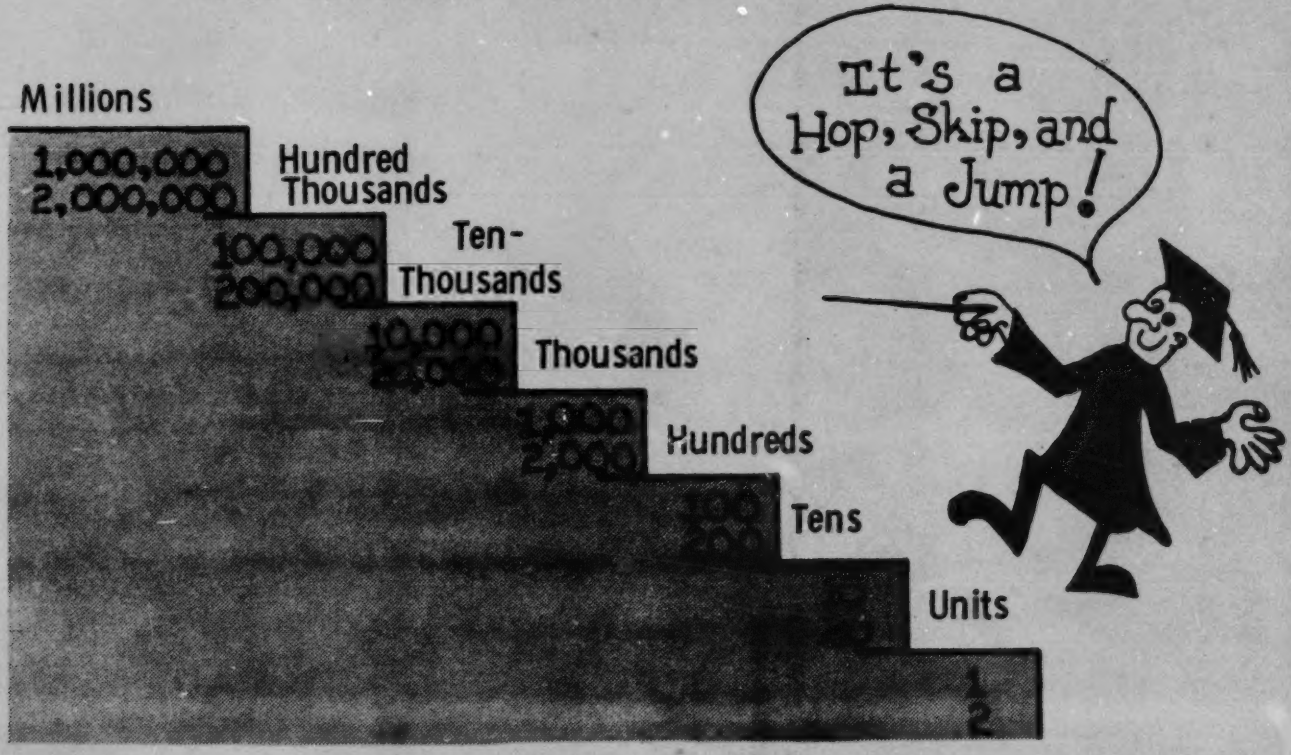
201, etc. ⟷ TWO HUNDRED ONE

300 ⟷ THREE HUNDRED

301, etc. ⟷ THREE HUNDRED ONE

| | | |
|---|---|---|
| 400 | ⟷ | FOUR HUNDRED |
| 401, etc. | ⟷ | FOUR HUNDRED ONE |
| 500 | ⟷ | FIVE HUNDRED |
| 501, etc. | ⟷ | FIVE HUNDRED ONE |
| 600 | ⟷ | SIX HUNDRED |
| 601, etc. | ⟷ | SIX HUNDRED ONE |
| 700 | ⟷ | SEVEN HUNDRED |
| 701, etc. | ⟷ | SEVEN HUNDRED ONE |
| 800 | ⟷ | EIGHT HUNDRED |
| 801, etc. | ⟷ | EIGHT HUNDRED ONE |
| 900 | ⟷ | NINE HUNDRED |
| 901, etc. | ⟷ | NINE HUNDRED ONE |

## THE STAIRWAY TO LARGER NUMBERS



# THOUSANDS

NOTE: A comma is generally used after the word "thousand," just as a comma appears after the thousand place in writing figures.

| | |
|---|---|
| 1,000 | One Thousand |
| 1,100 | One Thousand, One Hundred |
| 1,110 | One Thousand, One Hundred Ten |
| 1,111 | One Thousand, One Hundred Eleven |
| 1,112 | One Thousand, One Hundred Twelve |
| 1,113 | One Thousand, One Hundred Thirteen |
| 1,225 | One Thousand, Two Hundred Twenty-Five |
| 10,000 | Ten Thousand |
| 10,100 | Ten Thousand, One Hundred |
| 10,201 | Ten Thousand, Two Hundred One |
| 20,000 | Twenty Thousand |
| 30,000 | Thirty Thousand |
| 31,000 | Thirty-One Thousand |
| 40,000 | Forty Thousand |
| 41,000 | Forty-One Thousand |
| 50,000 | Fifty Thousand |
| 51,000 | Fifty-One Thousand |

LET US PROCEED TO LEARN ABOUT THE BIG, BIG NUMBERS.

| | |
|---|---|
| 60,000 | Sixty Thousand |
| 70,000 | Seventy Thousand |
| 80,000 | Eighty Thousand |
| 90,000 | Ninety Thousand |
| 99,000 | Ninety-Nine Thousand |
| 100,000 | One Hundred Thousand |
| 110,000 | One Hundred Ten Thousand |
| 125,000 | One Hundred Twenty-Five Thousand |
| 500,000 | Five Hundred Thousand |
| 1,000,000 | One Million |
| 1,500,000 | One Million, Five Hundred Thousand |
| 2,000,000 | Two Million |
| 2,500,000 | Two Million, Five Hundred Thousand |
| 30,000,000 | Thirty Million |
| 99,000,000 | Ninety-Nine Million |
| 400,000,000 | Four Hundred Million |
| 1,000,000,000 | One Billion |

TEST NO. 1

Convert the following numbers to words

(1) 7 _____

(2) 11 _____

(3) 14 _____

(4) 19 _____

(5) 21 _____

(6) 25 _____

(7) 28 _____

(8) 32 _____

(9) 37 _____

(10) 43 _____

(11) 54 _____

(12) 58 _____

(13) 66 _____

(14) 69 _____

(15) 77 _____

(16) 86 _____

(17) 92 _____

(18) 98 _____

(19) 99 _____

(20) 100 _____

x

## TEST NO. 2

Write out the following numbers in words.

(1) 107 _____

(2) 109 _____

(3) 111 _____

(4) 155 _____

(5) 187 _____

(6) 208 _____

(7) 223 _____

(8) 264 _____

(9) 289 _____

(10) 433 _____

(11) 576 _____

(12) 675 _____

(13) 756 _____

(14) 828 _____

(15) 944 _____

(16) 939 _____

(17) 1,103 _____

(18) 1,510 _____

(19) 2,309 _____

(20) 2,715 _____

# PRE-TEST NO. 1 — ADDITION

How good are you at adding numbers?
Let us see how many you can do correctly.

PLACE YOUR ANSWERS IN THE COLUMN AT THE RIGHT ⟶ ANSWERS

SAMPLE:

$$\begin{array}{r} 10 \\ 20 \\ 30 \\ 40 \\ \hline 100 \end{array}$$

100

(1) $\$ 7.68 + 4.09 + 9.85 + 6.19 + 7.23$

(2) $\$ 12.60 + 35.70 + 45.34 + 63.00 + 26.44$

(3) $\$ 234.50 + 12.60 + 140.87 + 208.70 + 685.56$

(4) $\$ 608.98 + 243.25 + 35.67 + 367.94 + 37.08$

(5) $\$ 2.45 + 1.86 + 4.50 + 3.82$

(6) $\$ 4.76 + 3.75 + 7.25 + 5.47$

(7) $\$ 7.80 + 8.25 + 5.67 + 4.68$

(8) $\$ 23.16 + 16.94 + 8.50 + 13.54$

(9) $\$ 65.00 + 32.87 + 20.50$

(10) $\$ 6,978.95 + 4,823.87 + 435.47$

1 –
2 –
3 –
4 –
5 –
6 –
7 –
8 –
9 –
10 –

SCORE

PRE-TEST NO. 2 SUBTRACTION

Now you will take away numbers from numbers.

PLACE YOUR ANSWERS IN THE COLUMN AT THE RIGHT ⟶ ANSWERS

SAMPLE:

$$\begin{array}{r} 1{,}864 \\ -\ 940 \\ \hline 924 \end{array}$$

924

(1) $\begin{array}{r} 949 \\ -\ 426 \\ \hline \end{array}$ (2) $\begin{array}{r} 2{,}237 \\ -\ 76 \\ \hline \end{array}$ (3) $\begin{array}{r} 14{,}678 \\ -\ 909 \\ \hline \end{array}$

(4) $\begin{array}{r} 84{,}457 \\ -\ 7{,}368 \\ \hline \end{array}$ (5) $\begin{array}{r} \$12.56 \\ -\ 4.85 \\ \hline \end{array}$ (6) $\begin{array}{r} \$42.85 \\ -\ 26.50 \\ \hline \end{array}$

(7) $\begin{array}{r} \$76.09 \\ -\ 58.72 \\ \hline \end{array}$ (8) $\begin{array}{r} 234{,}560 \\ -\ 87{,}456 \\ \hline \end{array}$

(9) $\begin{array}{r} 648{,}902 \\ -\ 97{,}850 \\ \hline \end{array}$ (10) $\begin{array}{r} 389{,}182 \\ -\ 200{,}964 \\ \hline \end{array}$

1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10 –

PRE-TEST NO. 3 DIVISION

You will see how many times one number goes into another.

PLACE YOUR ANSWERS IN THE COLUMN TO THE RIGHT ⟶ ANSWERS

SAMPLE: $6\overline{)54}$ = 9

(1) $12\overline{)36}$ (2) $12\overline{)144}$ (3) $5\overline{)75}$

(4) $8\overline{)56}$ (5) $22\overline{)792}$ (6) $53\overline{)742}$

(7) $81\overline{)1863}$ (8) $78\overline{)3432}$

(9) $75\overline{)\$26250}$ (10) $146\overline{)5256}$

1 –
2 –
3 –
4 –
5 –
6 –
7 –
8 –
9 –
10 –

# PRE-TEST NO. 4 MULTIPLICATION

Multiplying is a short method of adding a number to itself a given number of times.

PLACE YOUR ANSWERS IN THE COLUMN AT THE RIGHT ⟶ ANSWERS

SAMPLE:

$$\begin{array}{r} 6 \\ \times\ 4 \\ \hline 24 \end{array}$$

24

(1) $\$13.75 \times 5$

(2) $864 \times 36$

(3) $\$940.30 \times 12$

(4) $139 \times 205$

(5) $\$1{,}009 \times 13$

(6) $\$8.93 \times 15$

(7) $\$430 \times 24$

(8) $162 \times 207$

(9) $\$1{,}773.51 \times 3$

(10) $1860 \times 244$

1 –
2 –
3 –
4 –
5 –
6 –
7 –
8 –
9 –
10 –

# + ADDITION +

Why Learn It?

Every bakery worker, from the shop foreman to the porter, is constantly required to solve simple mathematical problems. It is very important, therefore, for the apprentice in the trade to learn to be good at addition. It will save him or her from mistakes in the shop and in his or her own bank account.

# PROBLEMS IN ADDITION

COMPUTATION AND ANSWERS

SAMPLE: The bakery salesperson sold 6 dozen donuts in the morning
11 dozen donuts in the afternoon
23 dozen donuts in the evening

How many dozen donuts did the salesperson sell all day?

40 doz.

Why should we want to know how many donuts were sold on any given day? _____

_____

(1) The driver of a bakery delivery truck drove:
59 miles on Monday
29 miles on Tuesday
32 miles on Wednesday
52 miles on Thursday
128 miles on Friday and Saturday

How many miles did he travel? Ans.
Why would we want to know how many miles the driver drove?

_____

_____

(2) A cake mix is composed of: 12 pounds of cake flour
9 pounds of granulated sugar
6 pounds of milk
3 pounds 8 ounces of whole eggs
4 ounces of baking powder
2 ounces of flavoring
1 ounce of salt
12 pounds 8 ounces of water

What is the total weight of this mix? Ans.
As bakers, why should we want to know how much mix a given formula will produce? _____

_____

(3) The weekly payroll for the Rolling Pin Bakery reads as follows:

| | |
|---|---|
| Nancy | $272.50 |
| Joan | $244.25 |
| Kelly | $238.10 |
| Joe | $315.85 |
| Mike | $188.30 |
| Jim | $217.77 |

What is the total amount paid out by the bakery each month in wages? Ans.

Who needs to know the weekly payroll, and why? _____

---

(4) Upon delivery, five drums of shortening were found to contain different amounts of shortening.

| | |
|---|---|
| The first drum contained | 417 pounds |
| the second, | 450 pounds |
| the third, | 432 pounds |
| the fourth, | 419 pounds |
| the fifth, | 427 pounds |

How much shortening did the bakery receive? Ans.

Why should the total weight received interest us? _____

---

# — SUBTRACTION —

Why Learn It?

Subtraction is most widely used by the baker in keeping inventories. Raw materials, paper goods, and finished baked products must be deducted as they are used up or sold, so that there is some kind of control over the business.

In shop bookkeeping and in keeping personal accounts as well, a baker must be skillful in subtraction.

# PROBLEMS IN SUBTRACTION

**COMPUTATION AND ANSWERS**

**SAMPLE:** The Five Star Bakery ordered 1,000 pounds of high-gluten flour. It used 627 pounds in one week. How much was left at the end of the week?

```
 1000
- 627
------
 373 lbs.
```

Why is it important to know how much is left? _____

_____

(1) The Home Style Bakery shipped 6,127 dozen donuts, but 676 dozen were returned the next day. How many donuts were sold?

Why should we concern ourselves with stale baked goods?

_____

_____

(2) Robert works for the Hilltop Bakery. A full week's work consists of 37½ hours. Robert worked only 14½ hours. How many hours of work did Robert lose?

What is the point of working full time? _____

_____

What are some of the valid reasons for losing time from work?

_____

_____

(3) What is the weight of the pastry flour in a 46-pound cookie mix, in which the weights of the other ingredients are:

| | |
|---|---|
| Granulated sugar | 6 pounds |
| Almond paste | 12 pounds |
| Margarine | 12 pounds |
| Egg whites | 4 pounds |

Why do we want to know how much pastry flour is needed?

(4) The Deluxe Bakery makes a variety of cakes from one basic mix. After mixing 450 pounds of batter, the baker takes out:

127 pounds for cherry layers
59 pounds for marble cake
79 pounds for cupcakes
23 pounds for nut cake

How many pounds of basic cake mix are left?
What happens to the leftover cake mix?

(5) To fill the orders of five regular customers, the Do-Boy Bakery makes 125 dozen assorted snails (sweet rolls) daily. One of the customers cancels his order for 9 dozen pecan snails, 10 dozen raisin snails, 14 dozen cream snails, and 3 dozen cherry snails.

How many dozen snails should the bakery produce in order not to over-produce?
What do we mean by over-produce?

(6) A baker placed on order for 4,250 pounds of patent flour, 2,500 pounds of cake flour, 600 pounds of rye flour, and 100 pounds of soy bean flour. After receiving shipment, the baker discovered the following shortages:

159 pounds of patent flour
73 pounds of cake flour
26 pounds of rye flour

How many pounds of flour did he actually receive?

# × MULTIPLICATION ×

Why Learn It?

Multiplication is used constantly in everyday transactions. It is of particular importance to the baker when he is changing batch sizes or figuring costs and production outputs.

Even a baker who uses a calculator to do multiplication problems must know how to multiply if he or she is to use the calculator intelligently.

# PROBLEMS IN MULTIPLICATION

**COMPUTATION AND ANSWERS**

SAMPLE: A bakery worker was paid $150.00 per week, for 52 weeks.

What were his earnings for the year?

Why should we want to know our annual earnings?

```
  $150
X  52
 ----
  300
 750
 ----
$7,800
```

(1) At the Skylark Bakery, a batch of white-bread dough weighs 544 pounds. Four batches are made daily. How many pounds of dough are produced in a 7-day period?
Why do we want to know the weekly production?

(2) Ten bakers in the Firebrand B[illegible]y produce 225 cakes per hour. They work 7 hours per day. How many cakes can they produce in 4 days?
Why are we interested in knowing how much can be produced in a given period of time?

(3) How many loaves of bread can be sliced in 12 hours by a bread-slicing machine that slices 22 loaves per minute?
Who cares how many loaves of bread are sliced?

ANSWERS

(4) The Happy Day Bakery has three delivery trucks. Truck #1 covers 59 miles per day, #2 covers 63 miles per day, and #3 covers 57 miles per day.
How many miles do the three trucks cover in 30 days?
How important is it for us to know how far the trucks have traveled?

(5) The Blast-Off Bakery made 48 two-layer cakes twice a week for a period of 13 weeks (a quarter of a year) for the Stop 'n' Eat Restaurant.
What was the total number of single layers baked for this order?

If the restaurant renewed the order for the rest of the year, What would be the full year's production (of single layers) for this order?

# ÷ Division ÷

Why Learn It?

Division is a method of finding how many times one number (or quantity) is contained in another number (quantity).

Skill in division is essential to the baker when he is figuring unit costs. He needs it to calculate how many pieces of baked goods he can get from a given amount of dough or batter. Then he can figure out how much dough or batter to mix to produce a given number of pieces.

Division is fun. Try it, you'll like it!

# PROBLEMS IN DIVISION

COMPUTATION AND ANSWERS

SAMPLE: How many rolls are produced each minute by a roll divider that produces 1,500 dozen rolls an hour?
Why should we want to know this? _____

_____

25 dozen
60 ) 1500
120
300
300

(1) During a one-week period, a chain of 16 bakeries had total sales of $21,490. What was the average amount of business done by each of the bakeries during this period?
What could we find out about each bakery once we know the average sales for the whole chain? _____

_____

(2) How many loaves of bread can be produced from a batch of dough weighing 1,332 pounds, if each loaf is scaled at 18 ounces?
The answer to this problem tells us what? _____

_____

(3) A batch of rye dough weighs 1,140 pounds. How many loaves of bread will this dough produce, if each loaf is scaled at 2 pounds and 8 ounces?
Is it important to know how many loaves we will get out of this dough? _____ Why? _____

_____

(4) The Space Bakery has 24 dough troughs. Each can hold 540 pounds of dough. For 10,500 pounds of dough, how many dough troughs will we need?
What is a dough trough used for? _____

_____

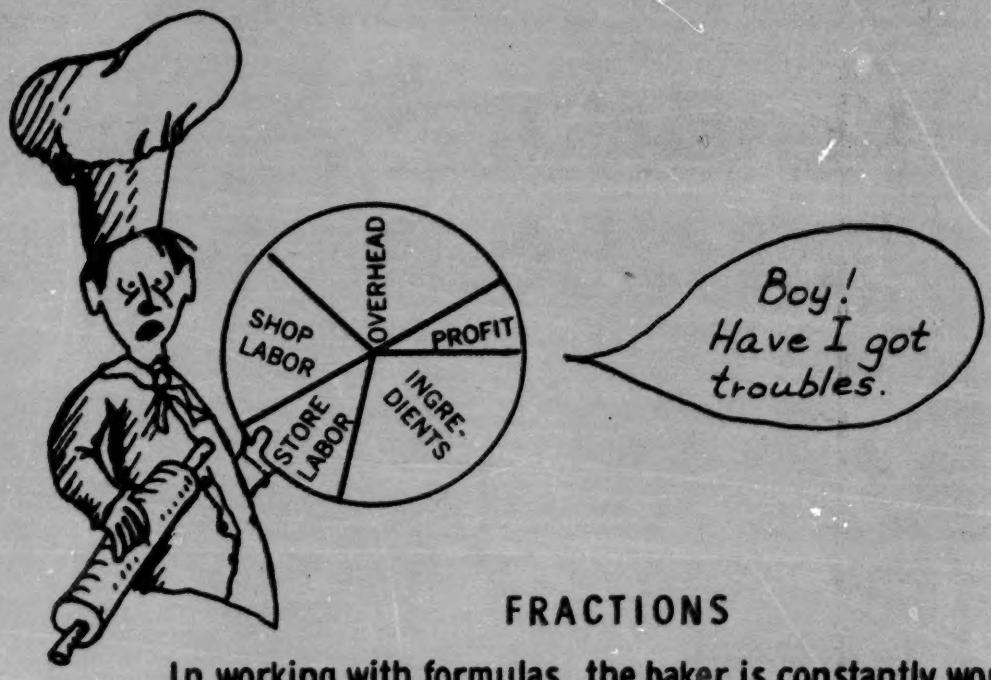
ANSWERS

(5) The Cookie Drop Bakery has a payroll of $109,244 annually. There are 12 people working in this bakery. What is the average annual wage?

What are wages? _____

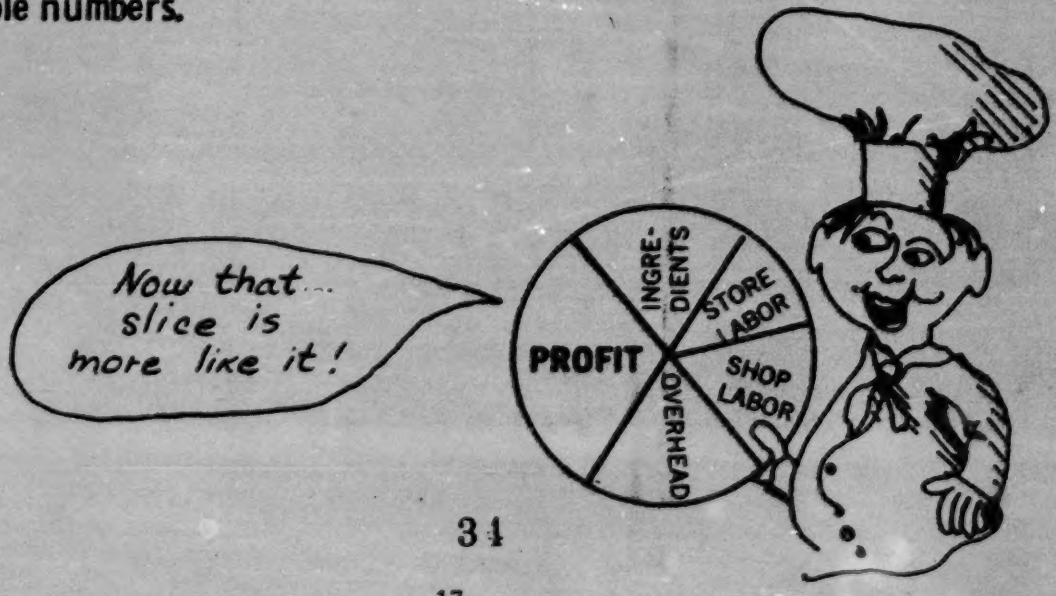
Why are we interested in wages? _____

_____




## FRACTIONS

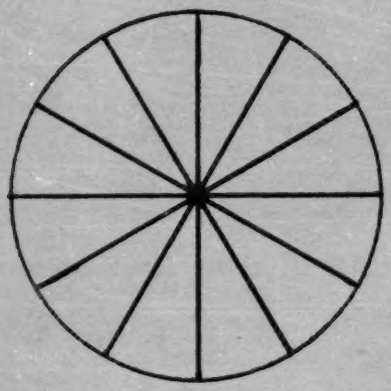
In working with formulas, the baker is constantly working with parts or portions of whole units of measure, such as the ounce, pound, quart, and gallon. When estimating costs, the baker must deal with parts of a dollar, and even parts of a cent. It is as necessary for the bakery worker to be able to solve problems involving the addition, subtraction, multiplication, and division of fractions as it is for him to be able to solve problems involving whole numbers.



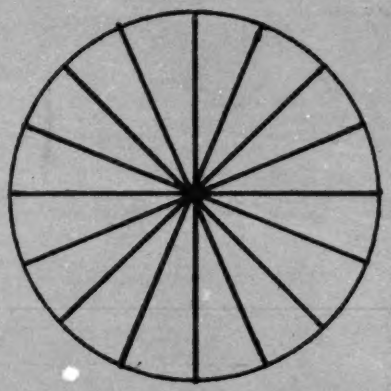
# THE BAKER'S FRACTIONS

SOME OF THE MANY CUTS OF CAKES

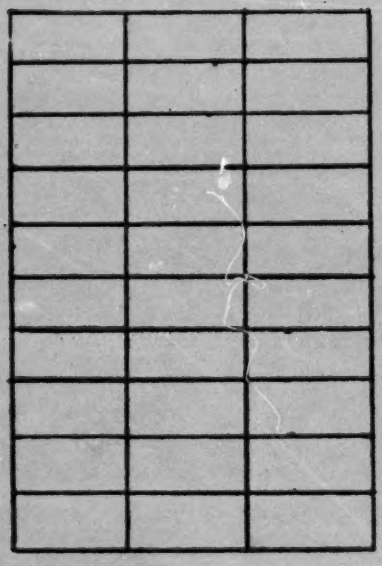
Round Cake
12 cuts



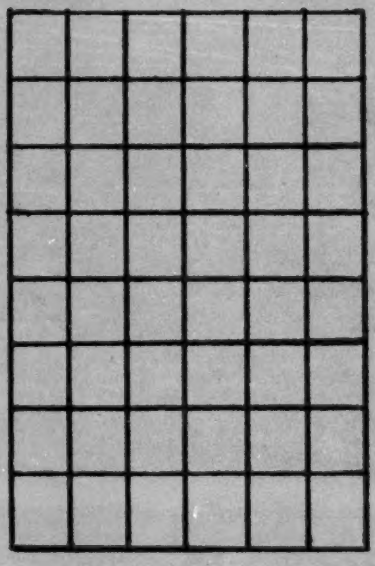
Round Cake
16 cuts



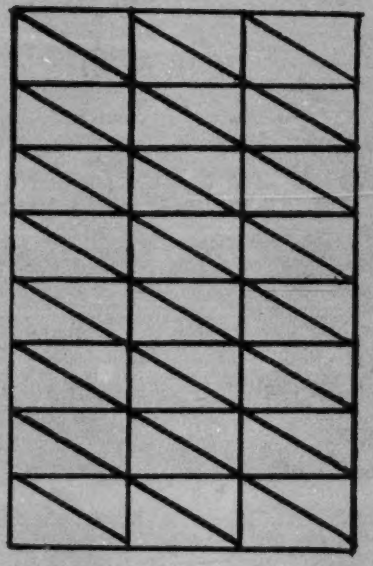
Full Sheet
30 rectangle cuts



Full Sheet
48 square cuts



Full Sheet
48 triangle cuts



# COMMON FRACTIONS

## BASIC PRINCIPLES

A common fraction indicates one or more parts of a whole unit or number. A fraction is composed of two numbers, one written above a horizontal line, the other written below the line. The line of the fraction represents the relationship of division that exists between the two numbers.

### TO REMEMBER!

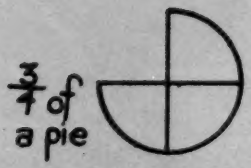
The DENOMINATOR (lower part) of a fraction tells how many parts a whole thing is divided into. ( $\frac{2}{5}$ means that a thing is divided into 5 parts.)

The NUMERATOR (upper part) of a fraction tells how many of these parts we are interested in. ($\frac{2}{5}$ means that we are concerned with 2 of the 5 parts.)

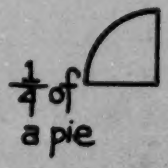
$$\frac{1}{4} \quad \begin{matrix}\text{(NUMERATOR)} \\ \text{(DENOMINATOR)}\end{matrix}$$

A fraction may stand for a part of a single thing.

Cut a pie into 4 pieces.
The 4 pieces together make one whole pie

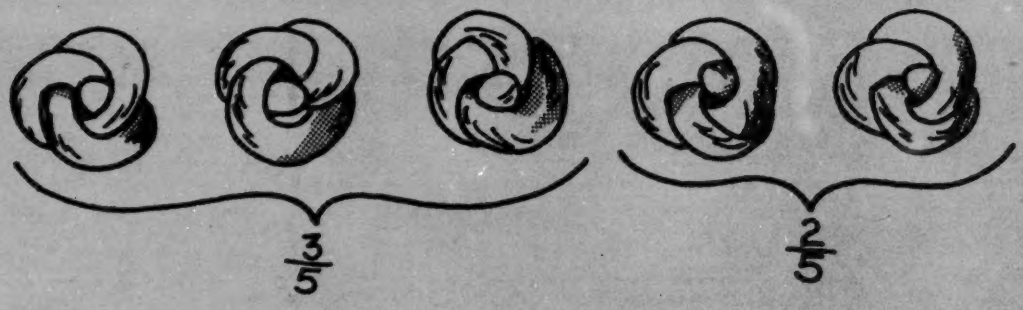



1 piece left out




The left-out piece by itself

## A fraction may stand for part of a group




Here is a group of five rolls. Each roll is 1/5 (one fifth) of the group. If we take away 2 rolls, we say that we are removing 2/5 of the number of rolls. If we take away 3 rolls, we are removing 3/5 of the number of rolls. In this instance, a fraction is being used to stand for part of a *group*.

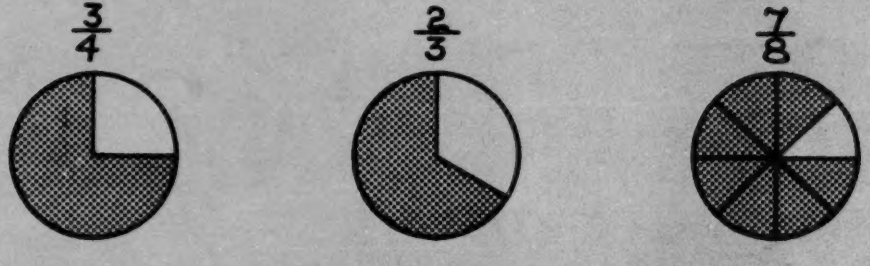
## A fraction also indicates division.

For example, the fraction 3/4 means 3 ÷ 4.
In the fraction 3/4, the 3 is the numerator, and the 4 is the denominator.

## PROPER AND IMPROPER FRACTIONS

When a common fraction has a value *less than one,* it is a *proper fraction.* (The numerator is *less than the denominator.)*

EXAMPLES:

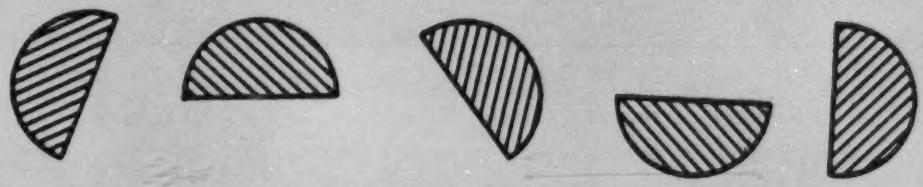



In the fraction 7/8 which is the numerator? _____

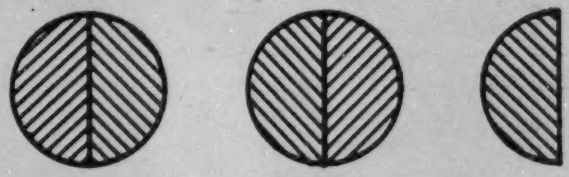
And which is the denominator? _____

When a common fraction has a value *greater than one*, it is called an *improper fraction.* (The numerator is *greater than* the denominator.)

Example: Here are 5 halves ($\frac{5}{2}$)



Put them together. We get 2½, a value greater than 1.

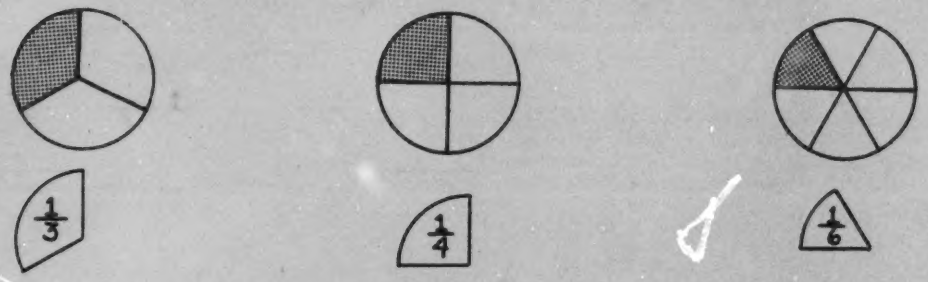


The fraction $\frac{5}{2}$ is called an improper fraction.

Before you get a swelled head over your knowledge of fractions, let's talk about . . . .

## COMPARING FRACTIONS

Which is bigger, a third of a pie, a quarter of a pie, or a sixth of a pie?




It is clear that, the *larger* the number in the denominator, the *smaller* the value of the fraction will be, when the numerator is 1.

Put a circle around the *largest* fraction in each group. But watch your step – some of these are tricky! Try to think of what they *mean*. If you need help, draw "pies."

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| (1) | $\frac{1}{8}$ | $\frac{1}{3}$ | $\frac{1}{10}$ | (6) | $\frac{2}{5}$ | $\frac{2}{8}$ | $\frac{2}{3}$ |
| (2) | $\frac{1}{4}$ | $\frac{1}{5}$ | $\frac{1}{6}$ | (7) | $\frac{3}{4}$ | $\frac{3}{8}$ | $\frac{3}{2}$ |
| (3) | $\frac{1}{20}$ | $\frac{1}{10}$ | $\frac{1}{2}$ | (8) | $\frac{2}{3}$ | $\frac{1}{4}$ | $\frac{1}{6}$ |
| (4) | $\frac{3}{5}$ | $\frac{1}{5}$ | $\frac{2}{5}$ | (9) | $\frac{1}{2}$ | $\frac{1}{3}$ | $\frac{7}{8}$ |
| (5) | $\frac{5}{8}$ | $\frac{4}{8}$ | $\frac{7}{8}$ | (10) | $\frac{1}{10}$ | $\frac{4}{5}$ | $\frac{3}{10}$ |

# FROM IMPROPER TO PROPER

IMPROPER

PROPER

When a baker works with formulas, he often finds himself with improper fractions. Generally he would like to change them to whole numbers or to *mixed* numbers. A mixed number is a whole number plus a proper fraction. You can get a mixed or whole number from an improper fraction *by doing the dividing* that the line of the fraction indicates.

For example: $\frac{16}{8}$ is an improper fraction.

Divide the 16 by the 8 and you get a whole number, 2.

$$\frac{16}{8} = 2 \text{ (a whole number)}$$

When the division does not come out even, you end up with a mixed number.

$$\frac{19}{8} \text{ is an improper fraction.}$$

Dividing 8 into 19, you get

$$8\overline{)\,19}\quad 2$$
$$16$$
$$3 \text{ left over.}$$

Answer, $2\frac{3}{8}$

$$\frac{19}{8} = 2\frac{3}{8} \text{ (a mixed number)}$$

See if you agree with these answers:

$\frac{7}{4}$ cup = $1\frac{3}{4}$ cups

$\frac{7}{2}$ lbs. = $3\frac{1}{2}$ lbs.

$\frac{9}{2}$ oz. = $4\frac{1}{2}$ oz.

Now try these:

(1) $\frac{13}{4}$ lbs. _____

(2) $\frac{6}{3}$ oz. _____

(3) $\frac{9}{8}$ qts. _____

(4) $\frac{21}{7}$ pies _____

(5) $\frac{15}{4}$ lbs. _____

(6) $\frac{17}{12}$ doz. _____

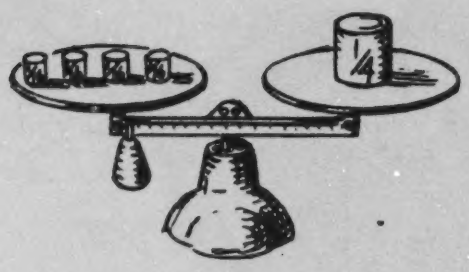
(7) $\frac{12}{3}$ cups _____

(8) $\frac{35}{12}$ doz. _____

(9) $\frac{19}{16}$ lbs. _____

(10) $\frac{27}{12}$ feet _____

# REDUCING FRACTIONS




You might weigh out 4 ounces of grated cheese. If I asked you what part of a pound that was, what would you say?

Well, you know that a pound consists of 16 ounces. So you have 4 ounces out of a possible 16 ounces, or

$$\frac{4 \text{ ounces}}{16 \text{ ounces}} = \frac{4}{16} \text{ of a pound}$$

Would you say you have 4/16 of a pound? Probably not. You would *reduce the fraction* 4/16 to a *simpler* fraction. To do this, you would divide both numerator and denominator by the largest number that will go evenly into both. Both 4 and 16 can be divided by 2 and 4. We will choose the larger number, 4. Dividing both parts of the fraction by 4, we get:

$$\frac{4}{16} = \frac{1}{4}$$

So our 4 ounces of cheese was (as you knew all along), 1/4 pound.

Example 2: How many gallons in 10 quarts of milk? There are 4 quarts in 1 gallon. So we will divide 10 quarts by 4 quarts to get the number of gallons.

$$\frac{10 \text{ quarts}}{4 \text{ quarts}} = \frac{10}{4} = 2\frac{2}{4} \text{ gallons}$$

But we usually do not speak of 2/4 of a thing. We would *reduce* the fraction by dividing both numerator and denominator by the same number, 2.

$$\frac{2}{4} = \frac{1}{2}$$

and $2\frac{2}{4}$ gallons = $2\frac{1}{2}$ gallons

You may remember that we call this procedure *reducing a fraction to its lowest terms.* When a fraction is in its lowest terms, there is no number (other than 1) that will divide evenly into both numerator and denominator.

If you reduce a fraction and find that it is *not* in its lowest terms, then just divide again by some number until it is in its lowest terms.

Example 3: Reduce to lowest terms: $\frac{25}{75}$

We see that 5 will divide evenly into both 25 and 75.

$$\frac{25}{75} = \frac{5}{15}$$

But 5/15 is not in its lowest terms, for 5 will divide evenly again into both numbers.

$$\frac{25}{75} = \frac{5}{15} = \frac{1}{3} \text{ Answer}$$

If we had been real smart, we might have noticed that the number 25 went evenly into both 25 and 75. We'd have reached the same answer in one step instead of two.

$$\frac{25}{75} = \frac{1}{3}$$

Now reduce these fractions to lowest terms:

(1) $\frac{3}{12}$ _____

(2) $\frac{8}{16}$ _____

(3) $\frac{8}{10}$ _____

(4) $\frac{6}{9}$ _____

(5) $\frac{20}{100}$ _____

(6) $\frac{8}{12}$ _____

(7) $\frac{4}{6}$ _____

(8) $3\frac{6}{10}$ _____

(9) $12\frac{6}{12}$ _____

(10) $5\frac{2}{3}$ _____

Find what fractional part of a pound these are:

| | | | | | |
|---|---|---|---|---|---|
| (1) | 1 ounce | _____ | (6) | 2 ounces | _____ |
| (2) | 6 ounces | _____ | (7) | 14 ounces | _____ |
| (3) | 8 ounces | _____ | (8) | 4 ounces | _____ |
| (4) | 12 ounces | _____ | (9) | 3 ounces | _____ |
| (5) | 10 ounces | _____ | (10) | 15 ounces | _____ |

NOW TRY THE FOLLOWING PROBLEMS
(Give all answers in lowest terms)

(1) A piece of dough is 3 inches long. Expressed as a fraction of a foot, it is _____ ANSWER _____

(2) A piece of dough weighs 6 ounces. Expressed as a fraction of a pound, it is _____ ANSWER _____

(3) 2 ounces of water, expressed as a fraction of a cup, is _____ ANSWER _____

(4) 16 ounces of milk, expressed as a fraction of a quart, is _____ ANSWER _____

(5) 24 ounces of granulated sugar, expressed in pounds, is _____ ANSWER _____

(6) If I remove 4 cuts from a 12-cut round cake, what fractional part have I removed? _____ ANSWER _____

(7) What fractional part remains? _____ ANSWER _____

(8) If I remove 36 square cuts from a 48-cut sheet cake, what fractional part have I removed? _____ ANSWER _____

(9) What fractional part remains? _____ ANSWER _____

(10) A baker used up 25 of the 30 pounds of frozen eggs in a can. What fractional part remained? _____ ANSWER _____

Before we apply our knowledge to real-life baking recipes, there is another skill we must learn – multiplying with fractions.

# MULTIPLYING WITH FRACTIONS

Dom E. Bakker had a perfectly good recipe for spritz cookies. It called for 2 pounds of sugar, 5 pounds of shortening, 1 pound of egg whites, and 5 pounds of patent flour, plus salt and flavoring. It made about 12 pounds of cookies. The boss said "Make up half a batch." Dom had never bothered much in school with math. He got the whole thing wrong and the cookies had to be thrown out. So was Dom. How should he have figured it out?

Before we can tell him how, we have to learn to multiply by a fraction.

And before we can multiply by a fraction, we have to understand one important fact about whole numbers: a whole number may be thought of as a fraction with a denominator of 1.

$5 = \frac{5}{1}$ $\qquad 10 = \frac{10}{1}$ $\qquad 100 = \frac{100}{1}$

Once we get that fixed in our minds, we can multiply by fractions.

There is no trick to it at all. Just multiply the numerators and multiply the denominators. Then simplify the answer.

Here are some examples:

(a) $\frac{1}{2} \times \frac{2}{3} = \frac{1 \times 2}{2 \times 3} = \frac{2}{6}$, which reduces to $\frac{1}{3}$ (Answer)

(b) $\frac{3}{4} \times \frac{3}{4} = \frac{3 \times 3}{4 \times 4} = \frac{9}{16}$ Answer

(c) $2 \times \frac{1}{4} = \frac{2}{1} \times \frac{1}{4} = \frac{2 \times 1}{1 \times 4} = \frac{2}{4} = \frac{1}{2}$ (Answer)

(d) $\frac{1}{3} \times 10 = \frac{1}{3} \times \frac{10}{1} = \frac{1 \times 10}{3 \times 1} = \frac{10}{3} = 3\frac{1}{3}$ (Answer)

Before we go back to Dom, you'd better practice on a few problems. Be sure to simplify your answers.

(1) $\frac{1}{2} \times \frac{1}{2}$ _____

(2) $\frac{3}{4} \times \frac{1}{3}$ _____

(3) $4 \times \frac{3}{4}$ _____

(4) $\frac{2}{3} \times \frac{3}{4}$ _____

(5) $\frac{2}{3} \times 3$ _____

(6) $\frac{1}{2} \times \frac{3}{4}$ _____

(7) $6 \times \frac{1}{3}$ _____

(8) $\frac{2}{3} \times \frac{1}{3}$ _____

(9) $\frac{1}{4} \times \frac{1}{2}$ _____

(10) $\frac{3}{4} \times 12$ _____

Now here is something you should always remember:
*If you multiply any number at all by a proper fraction, you will get a SMALLER NUMBER for an answer than the number you started out with.*

Go over your answers to the 10 problems above, to see whether this is true in every case. (Where two fractions are multiplied together, consider the first one to be the original number.)

Now let's get back to Dom's problem. All he had to do to make up half a batch was to multiply each ingredient by ½.

| | For Full Batch | Multiply by | For Half Batch | Simplified |
|---|---|---|---|---|
| Sugar | 2 lbs. | 1/2 | | |
| Shortening | 5 lbs. | 1/2 | | |
| Egg whites | 1 lb. | 1/2 | | |
| Patent flour | 5 lbs. | 1/2 | | |
| Salt | 1 oz. | 1/2 | | |
| Vanilla | 1 oz. | 1/2 | | |

You do the work Dom should have done. We'll see whether your cookies will come out right by checking your answers with the rest of the class.

Great! Now here's another problem. Here's the recipe for an angel cake. You are to figure out the amount of each ingredient for 6 angel cakes. Do it now.

| | For One Cake | Multiply by | For Six Cakes | Simplified |
|---|---|---|---|---|
| Egg whites | 1 cup | 6 | | |
| Sugar | 3/4 cup | 6 | | |
| Salt | 1/4 t. | 6 | | |
| Cream of Tartar | 1/4 t. | 6 | | |
| Vanilla | 1/2 t. | 6 | | |
| Almond flavor | 1/4 t. | 6 | | |
| Cake flour (sifted) | 3/4 cup | 6 | | |
| Sugar | 1 cup | 6 | | |

You will notice that the above recipe called for two separate amounts of sugar, because that's how angel cakes are made. But just suppose the *total* amount had been given you (1¾ cups), and you had been told to multiply it by 6. Could you have done it?

Those who could not have done the problem should pay very close attention now.

## MIXED NUMBERS TO IMPROPER FRACTIONS

In order to multiply small mixed numbers easily, it is best to change them to improper fractions. How do we do this? It's not hard.

We learned before how to change an improper fraction to a mixed number.

$\frac{13}{4} = 3\frac{1}{4}$ We divided 13 by 4 and expressed the remainder (1) as a fraction ($\frac{1}{4}$).

To change a mixed number to an improper fraction, we simply reverse the process.

$3\frac{1}{4} = \frac{13}{4}$ We multiplied 3 by 4, added in the remainder (1), and put the total over the denominator.

Practice on this one: $5\frac{2}{3}$. Do you get $\frac{17}{3}$ as the improper fraction?
Now try $8\frac{5}{8}$. What do you get?

Let's see whether we can now multiply 1¾ cups of sugar by 6. First we'll change the 1¾ cups to an improper fraction. The rest will be easy.

$1\frac{3}{4} \times 6 = \frac{7}{4} \times 6 = \frac{7}{4} \times \frac{6}{1}$

$\frac{7 \times 6}{4 \times 1} = \frac{42}{4} = 10\frac{2}{4} = 10\frac{1}{2}$

Just as a check – to be sure no one is "pulling a fast one" on you, go back and see whether the angel cake recipe for six cakes does call for a *total* amount of 10½ pounds of sugar.

Before we go on to working practical baking problems using mixed numbers, here are a few for you to practice on.

A. Convert these to improper fractions:

(1) $2\frac{1}{2}$ _____ (6) $3\frac{1}{3}$ _____

(2) $3\frac{1}{4}$ _____ (7) $4\frac{1}{2}$ _____

(3) $1\frac{3}{4}$ _____ (8) $2\frac{3}{8}$ _____

(4) $1\frac{7}{8}$ _____ (9) $5\frac{2}{3}$ _____

(5) $2\frac{2}{3}$ _____ (10) $4\frac{3}{4}$ _____

B. Multiply these:

(1) $1\frac{1}{4} \times 3$ _____

(2) $2\frac{2}{3} \times 2$ _____

(3) $3\frac{1}{2} \times 3$ _____

(4) $4\frac{3}{4} \times 2$ _____

(5) $\frac{1}{2} \times 3$ _____

By now you should be able to convert recipes to larger and smaller quantities with no sweat at all.

## LET'S SEE YOU DO THESE . . . .

(1) A recipe for 24 eclair shells called for the following ingredients. Work out the recipe for (a) 48 shells, (b) 72 shells.

| | 24 Count | (a) 48 Count | (b) 72 Count |
|---|---|---|---|
| Water | 1 cup | | |
| Salt | 1/4 t. | | |
| Vegetable oil | 1/2 cup | | |
| Flour, sifted | 1 1/4 cups | | |
| Eggs | 1 cup | | |
| Milk | 1/4 cup | | |
| Baking powder | 1/2 t. | | |

(2) Here is a recipe for fresh apple pie filling, enough for two 9-inch pies. You are to work out the recipe for (a) one pie and (b) 6 pies

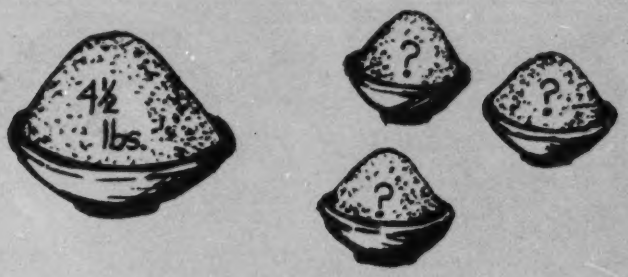
| | For Two Pies | (a) For One Pie | (b) For Six Pies |
|---|---|---|---|
| Apples | 3 lbs. | | |
| Sugar (approx.) | 2 cups | | |
| Lemon juice | 1 tbs. | | |
| Cinnamon | 1 1/2 t. | | |
| Butter | 2 tbs. | | |
| Drained syrup (incl. added water if necessary) | 1 1/4 cups | | |
| Cornstarch | 3 tbs. | | |

(3) Let's try one more. (Remember Dom E. Bakker and what happened to him!) The sweet yeast dough formula given below makes 18 soft rolls. Make a double batch and a triple batch.

| | Yield: 18 | Yield: 36 | Yield: 54 |
|---|---|---|---|
| Yeast | 1 pkg. | | |
| Warm water | 1/4 cup | | |
| Sugar | 1/3 cup | | |
| Salt | 1 1/2 t. | | |
| Shortening | 1/3 cup | | |
| Eggs | 2 | | |
| Warm milk | 3/4 cup | | |
| Vanilla | 1 tbs. | | |
| All-purpose flour | 5 cups | | |

# DIVIDING A FRACTION BY A WHOLE NUMBER

Suppose I said to you: Divide 4½ pounds of sugar into three equal amounts. Would you panic? Throw up your hands? Get three bowls and put some sugar into each until they looked equal? Or would you sit down and try to figure out how much sugar to weigh out for each amount?




You might say, "But you never taught us to divide a fraction by 3!" True enough. But you do know how to *multiply* a fraction by 1/3, don't you? Well, dividing by 3 gives the same answer as multiplying by 1/3.

Dividing by 2 is the same as multiplying by ½ (see the recipe for a simple apple-pie filling on page 34). Dividing by 4 is the same as multiplying by ¼. And so on.

Let's see how much sugar we'd have in each amount if we divided 4½ pounds by 3.

$$4\tfrac{1}{2} \div 3 = \tfrac{9}{2} \div 3$$

$$= \tfrac{9}{2} \times \tfrac{1}{3} = \tfrac{9}{6} = 1\tfrac{3}{6}$$

$$= 1\tfrac{1}{2} \text{ lbs.}$$

Try these:

1. Divide $2\frac{1}{2}$ cups of flour by 2. _____

2. Divide $1\frac{1}{3}$ lbs. of shortening by 2. _____

3. Divide $3\frac{1}{2}$ ounces of spices by 4. _____

4. Divide 5 lbs. of peaches by 3. _____

5. Divide $7\frac{1}{2}$ lbs. of flour by 2. _____

# DIVIDING BY A FRACTION

You might in your bakery work have to divide a number by a fraction or mixed number. For example, you might have a formula whose ingredients add up to, say, 2¾ pounds. You need to make 12 pounds. By what number must you multiply each ingredient? To find the number, you must divide 12 by 2¾.

If you didn't know how to divide 12 by 2¾, you could first divide it by 2, then by 3, and say that the answer lies between the two results, closer to the "3" answer. But how much better to get the exact answer and directly!

To divide any number by a fraction, *invert the fraction* and multiply. Of course a mixed number has to be changed into an improper fraction before it can be inverted.

$$12 \div 2\frac{3}{4} = 12 \div \frac{11}{4}$$

$$= \frac{12}{1} \times \frac{4}{11} = \frac{48}{11} = 4\frac{4}{11}$$

Therefore if you made up the batch 4½ times the formula, you would have enough.

Example 2: Divide 6½ by 1½.

$$6\frac{1}{2} \div 1\frac{1}{2} = \frac{13}{2} \div \frac{3}{2}$$

$$= \frac{13}{2} \times \frac{2}{3} = \frac{26}{6} = 4\frac{2}{6} = 4\frac{1}{3}$$

Now perhaps you can see that dividing a fraction by a *whole number* is a special case of dividing by a mixed number.

Example 3: Divide 4¾ by 3.

$$4\frac{3}{4} \div 3 = \frac{19}{4} \div \frac{3}{1}$$

$$= \frac{19}{4} \times \frac{1}{3} = \frac{19}{12} = 1\frac{7}{12}$$

Now try these:

1. Divide 100 by $2\frac{1}{2}$ _____

2. Divide 75 by $\frac{3}{4}$ _____

3. Divide 12 by $1\frac{1}{2}$ _____

4. Divide 18 by $3\frac{1}{3}$ _____

5. Divide $4\frac{1}{2}$ by $1\frac{1}{2}$ _____

6. Divide $14\frac{1}{2}$ by 3 _____

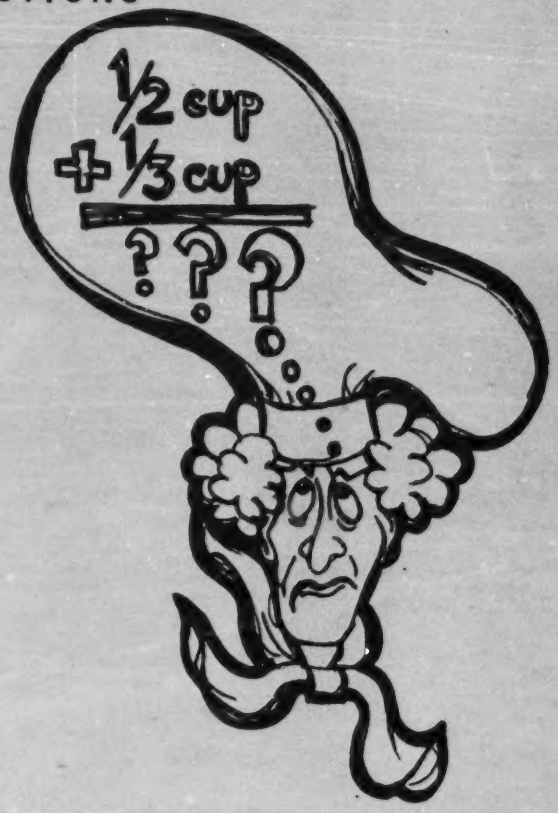
7. A batch of cooky dough weighs 4½ pounds. What number would I have to multiply each ingredient by to make up a batch weighing 15 lbs.? _____

8. A formula for baking-powder biscuits comes to 5 lbs. 6 oz. To make a batch of biscuits weighing 16 pounds, by what number would I have to multiply each ingredient? _____

9. How many ¼-pound cuts would I get out of a sheet cake weighing 8 pounds? _____

10. How many 8-ounce pizzas can I get from a batch of dough weighing 45 pounds? _____

# ADDING FRACTIONS




If a baker had only multiplication and division of fractions to worry about, his worries would not be enough to keep him awake at night. But then there's the problem of adding fractions, too. Well, any baker who can learn to make a good sponge cake can learn to add fractions!

If the problem is to add two fractions that have the same denominators, it is easy enough. Adding 3/8 to 4/8 is as easy as adding 3 cupcakes and 4 cupcakes.

| | | | |
|---|---|---|---|
| | $\frac{3}{8}$ | | 3 cupcakes |
| | | is | |
| | $+\ \frac{4}{8}$ | like | + 4 cupcakes |
| | ——— | | ——— |
| | . | | . |
| | . | | . |
| The | . | | . |
| answers are... | $\frac{7}{8}$ | | 7 cupcakes |

The rule is: add the numerators and put the answer over the denominator. Simplify the answer if necessary.

In the above problem, both fractions had the same denominator – 8. We call 8 the *common denominator* because it is "common" to both. (That's a use of the word "common" you don't see so much, but it's quite correct.)

But suppose you had the problem of the baker in the picture above (1/2 plus 1/3)? Or suppose the problem we just solved had read 3/8 plus 1/2? Then it's like adding 3 cupcakes and 1 layer cake. You can't do the problem directly, because 3/8 and 1/2 do not have a *common denominator.*

Unlike the cakes, however, we *can* change fractions to *equivalent* fractions with a common denominator. "Equivalent" means *equal in value.*

Our problem, then, becomes this: to change 1/2 to an equivalent fraction with a denominator of 8.

$$\frac{1}{2} = \frac{?}{8}$$

This is the reverse of the problem of reducing a fraction to lowest terms. Here we are changing a fraction to higher terms. In reducing to lowest terms, we divided both parts of a fraction by the same number. Now we must *multiply* both parts of a fraction (½) by the same number. The question is, by *what number*?

We can find the number by dividing 2 into 8. We get 4. Now if we multiply both numerator and denominator by 4, we get a new, equivalent fraction.

$$\frac{1}{2} \times \frac{4}{4} = \frac{4}{8}$$

Check: $\frac{4}{8}$ can be *reduced* to $\frac{1}{2}$

So 1/2 equals 4/8, and we can now add 3/8 and 4/8 – which we already did on page 40.

Suppose we needed to change the fraction 3/4 to eighths.

$$\frac{3}{4} = \frac{?}{8}$$

We find what multiplier to use by dividing 4 into 8. The answer is 2. For every fourth, then, we have 2 eighths. To find the number of eighths for 3 fourths, we multiply by 2.

$$\frac{3}{4} \times \frac{2}{2} = \frac{6}{8}$$

Check: $\frac{6}{8}$ does reduce to $\frac{3}{4}$.

In actual practice, this is the way we would do it:

$$\frac{3}{4} = \frac{?}{8}$$

Divide the given denominator (4) into the needed denominator (8) and multiply the result (2) by the numerator of the original fraction (3). Put the new result (6) over the needed denominator (8).

Let's try another. Convert 2/3 to twelfths.

$$\frac{2}{3} = \frac{?}{12}$$

Divide 3 into 12 and get 4; multiply the 4 by 2 to get 8. Put the 8 over the 12.

$$\frac{2}{3} = \frac{8}{12}$$

Check this one yourself.

See whether you can change 2/5 to tenths.

$$\frac{2}{5} = \frac{?}{10}$$

Did you get the answer 4/10? Good!

## NOW TRY THESE. Change . . . .

(1) $\frac{1}{2}$ to $\frac{\ }{6}$ _____

(2) $\frac{1}{3}$ to $\frac{\ }{6}$ _____

(3) $\frac{1}{2}$ to $\frac{\ }{10}$ _____

(4) $\frac{1}{4}$ to $\frac{\ }{8}$ _____

(5) $\frac{3}{4}$ to $\frac{\ }{16}$

(6) $\frac{2}{3}$ to $\frac{\ }{9}$ _____

(7) $\frac{3}{4}$ to $\frac{\ }{12}$ _____

(8) $\frac{2}{3}$ to $\frac{\ }{12}$ _____

(9) $\frac{3}{8}$ to $\frac{\ }{16}$ _____

(10) $\frac{2}{5}$ to $\frac{\ }{15}$

## COMMON DENOMINATORS

Now that you've got the hang of changing to a larger denominator, you should find it easy to add fractions even though they have different denominators. How? By changing them to equivalent fractions with the same *(common)* denominator.

Let's show our baker on page 40 how to add 1/2 cup to 1/3 cup.

Look at the two fractions.

$$\frac{1}{2} \text{ and } \frac{1}{3}$$

Can you think of a denominator that we could use for both of these fractions? We could use *fourths* for the first fraction, but unfortunately 3 does not go evenly into 4, so we can't use it for the second fraction.

Aha! We *can use sixths.* We can convert both fractions into equivalent fractions with a denominator of 6. The problem is as good as solved.

$$\begin{array}{rcl} \frac{1}{2} & = & \frac{3}{6} \\ +\frac{1}{3} & = & \frac{2}{6} \\ \hline & & \end{array}$$

$\frac{5}{6}$ That's it. That's the answer.

One more. Let's make sure we have the idea. Try adding

$$\begin{array}{r} 1\frac{3}{4} \\ +\ 2\frac{3}{8} \\ \hline \end{array}$$

Here we should have no problem in seeing that 8 can be the common denominator. So we shall convert the 3/4 to eighths.

$$\begin{array}{rcl} 1\frac{3}{4} & = & 1\frac{6}{8} \\ +\ 2\frac{3}{8} & = & 2\frac{3}{8} \\ \hline & & \end{array}$$

$3\frac{11}{8} = 3 + 1\frac{3}{8} = 4\frac{3}{8}$ Answer

Now try a few on your own, and we will go over them together.

(1) $\begin{array}{r} \frac{1}{2} \\ +\ \frac{1}{4} \\ \hline \end{array}$ (2) $\begin{array}{r} 3\frac{1}{2} \\ +\ \frac{2}{3} \\ \hline \end{array}$ (3) $\begin{array}{r} 2\frac{3}{4} \\ +\ 1\frac{2}{3} \\ \hline \end{array}$

Note: If you have trouble finding a common denominator, you can always multiply the two denominators together. Then you know that both will go into the new denominator evenly.

## TRY YOUR HAND AT THESE

(1) 1½ cups of flour plus 1¼ cups _____

(2) 3½ dozen cookies plus 2¾ dozen _____

(3) The weight of a cake topping that contains ¾ lbs. of sugar, ¼ pound of water, and ¼ lb. of chocolate chips. _____

(4) The weight of a pie dough that contains 5 lbs. of flour, 3½ lbs. of shortening, and 1¾ lbs. of water. _____

(5) Jim worked the following number of hours during one week: Monday, 6½; Tuesday, 8¼; Wednesday, 8; Thursday, off; Friday, 8½; Saturday, 4¾. Find the total number of hours Jim worked that week. _____

(6) One day the following amounts of sugar were removed from the bin: 12½ lbs.; 3¾ lbs.; 10 lbs.; 5¾ lbs. How much sugar was used altogether? _____

(7) What is the total amount of *liquid* ingredients in the original recipe for eclair shells on page 34? _____

(8) What is the total amount of liquid ingredients in the 72-count recipe for the eclairs? _____

(9) Check your answers for (7) and (8) by multiplying the answer to (7) by 3. _____

(10) A recipe for pumpkin-pie filling calls for ½ t. of cinnamon, ¼ t. of nutmeg, and ¼ t. of ginger. What is the total amount of spices required? _____

# COMPARING FRACTIONS AGAIN

If in your baking work you want to know whether one fraction is larger than another, change them to equivalent fractions having a common denominator.

For example, which is more, 3/4 cup or 2/3 cup?

$$\frac{3}{4} \quad ??? \quad \frac{2}{3}$$

What would be a good common denominator? Looks as if we'll just have to multiply them. We get 12.

$$\frac{3}{4} = \frac{9}{12} \text{ and } \frac{2}{3} = \frac{8}{12}$$

Since 9/12 is clearly more than 8/12, we know that 3/4 is more than 2/3.

Let's try one together. Which is larger, 1/3 or 1/2?

Common denominator is . . . .

$$\frac{1}{3} = \text{—} \text{ and } \frac{1}{2} = \text{—}$$

Therefore ¼ is larger.

Try these on your own. Put a circle around the largest in each case.

(1) $\frac{1}{2}$ $\frac{1}{3}$ $\frac{5}{6}$ _____

(2) $\frac{1}{3}$ $\frac{2}{3}$ $\frac{1}{4}$ _____

(3) $\frac{3}{4}$ $\frac{7}{8}$ $\frac{1}{2}$ _____

(4) $\frac{2}{3}$ $\frac{4}{5}$ $\frac{13}{15}$ _____

(5) $\frac{5}{8}$ $\frac{3}{4}$ $\frac{3}{8}$ _____

(6) $\frac{2}{3}$ $\frac{1}{2}$ $\frac{1}{3}$ _____

(7) $\frac{3}{4}$ $\frac{2}{3}$ $\frac{1}{4}$ _____

(8) $\frac{5}{8}$ $\frac{5}{6}$ $\frac{1}{2}$ _____

(9) $\frac{3}{10}$ $\frac{2}{5}$ $\frac{1}{2}$ _____

(10) $4\frac{1}{2}$ $4\frac{3}{4}$ $4\frac{2}{3}$ _____

# T H E  D E C I M A L

The use of decimals is a part of everyday business. Money is nearly always written as a decimal, for example, $7.95.

Measurements are often written as a decimal, particularly in certain occupations. You must be sure YOU can read and write and work with decimals.

Like other fractions, they mean LESS THAN ONE.

DECIMAL NUMBERS ARE REALLY DECIMAL FRACTIONS.

When you buy gasoline, the price sign may read 59.9 cents per gallon. The .9 means $\frac{9}{10}$ of a cent. It is less than a whole cent. It is a DECIMAL FRACTION, or a DECIMAL for short.

This table will help you read the decimals.

| DIGITS IN: | HOW TO READ THEM | EXAMPLE | |
|---|---|---|---|
| One Decimal Place | Tenths | .9 | is $\frac{9}{10}$ |
| Two Decimal Places | Hundredths | .14 | is $\frac{14}{100}$ |
| Three Decimal Places | Thousandths | .123 | is $\frac{123}{1000}$ |
| Four Decimal Places | Ten Thousandths | .5067 | is $\frac{5067}{10,000}$ |
| And so on | | | |

# WATCH THAT DECIMAL POINT!

Some trades use long decimals every day. For example, a machinist may make a part 3.275 inches long. In the baking trade, however, our principal use for decimals is in *money*. So decimals need cause us no great grief.

We add decimals just the way we add whole numbers. There are two things we must remember, however:

1. Be sure to put the decimal point in the right place, and
2. keep the decimal points in a straight line when we add or subtract.

Good old Joe Snerd! He used to work in the store of Humble Pie, the bakery at the top of the hill. He'd make out a sales slip like this:

.96 rolls
10.00 spec. order
1.40 pastry
$ 3.36

The bakery had baked a special-order sheet cake, worth $10, and all it collected was $3.35 for the cake and two other items! After a while – just before the bakery went bankrupt – the boss found out why he was losing so much money, and fired Joe. Too bad Joe had never learned to keep his decimal points in line!

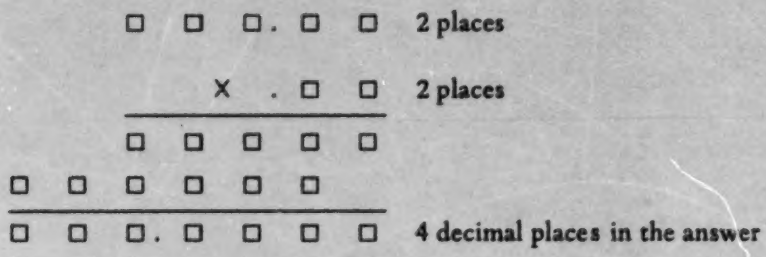
Add up the following bills for Baker Z:

| | | |
|---|---|---|
| (1) | Shortening, regular | 32.50 |
| | Shortening, high-ratio | 33.00 |
| | Eggs, frozen | 17.50 |
| | Imitation vanilla | 4.25 |
| | Apple filling | 21.84 |
| (2) | Flour, bread | 14.80 |
| | Flour, high-gluten | 15.65 |
| | Flour, pastry | 16.75 |
| | Sugar 6X | 38.40 |
| | Sugar, granulated | 37.40 |
| (3) | Chocolate chips | 16.50 |
| | Cocoa | 12.15 |
| | Cinnamon | 15.65 |
| | Salt | 3.75 |
| (4) | Milk powder | 39.05 |
| | Yeast | 3.50 |
| | Baking powder | 3.75 |
| | Flavor | 2.95 |
| | Fresh eggs | 15.90 |

# DECIMALS IN MULTIPLICATION AND DIVISION

The only thing different about multiplying and dividing with decimals is getting the right number of places in the answer.

In MULTIPLICATION, the number of places in the answer is the *total* number of places in the two numbers that are being multiplied together.




When multiplying numbers, it is usually easiest to multiply the longer number by the shorter or easier number.

Do these problems for Baker X:

(1) 5 boxes of Puff Do at $19.50 a box _____

(2) 24 pounds of yeast at $.35 a pound _____

(3) 3.5 bags of brown sugar at $12.34 a bag _____

(4) 6 cases of apple filling at $21.84 a case _____

(5) 42.5 pounds of cocoa at $.63 a pound _____

In DIVISION, once again we must be careful to locate the decimal point correctly. The most frequent use of division in the bakery trade is finding the *unit cost* when you know the cost of a dozen, or a case of 6, or 25 pounds or whatever.

Example: If the cost of a 30-pound can of frozen eggs is $17.40, what does a single pound cost?

To find the cost of *one* when we know the cost of *30*, we must divide by 30. Note where we put the decimal point in the answer – *Right above* the decimal point in the number we are dividing.

```
      .58
30 ) 17.40
     15 0
     ----
      2 40
      2 40
      ----
```

.58/lb., Answer

Now do these problems for Baker Y:

(1) Find the cost of one can of peach filling if a case of 6 cans cost $22.95. _____

(2) Find the cost of a pound of flour if a 100-lb. bag costs $14.75. _____

(3) If a case of 20 pounds of cocoa costs $12.95, what is the cost of 1 lb.? _____

(4) A 55-lb. bag of dry milk powder comes to $39.05. What does a single pound cost? _____

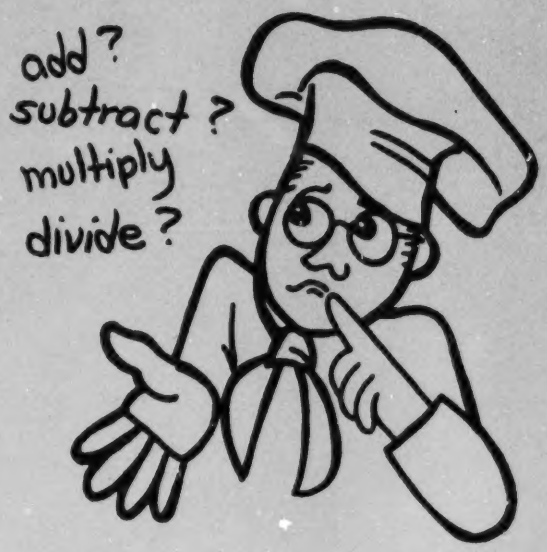
(5) A case of 6 5-qt. cans of liquid shortening costs $37.40.

(a) What is the cost of one can? _____

(b) What is the cost of one quart? _____

# THE BAKER USES DECIMALS

The hardest part of any problem is to decide what *operation* to do, that is, whether to add, subtract, multiply, or divide. You are not alone if you are puzzled by this – everyone else is, too. You must look at the problem, decide what it *means*, and which operation will get the figure you need. Then, when you get your answer, see whether it really *makes sense*. If it doesn't, you've surely used the wrong operation.




(1) Baker Rudolfo received his order for 4 50-lb. cubes of shortening at $31.85 per cube. What did the bill for shortening come to? _____

(2) Baker S. Simon bought 75 lbs. of broken-slab chocolate at $.875 per pound. A few weeks later he bought another 75 pounds at $.982 per pound.

(a) How much did the price per pound go up? _____

(b) How much more did the second order cost than the first? (To the nearest whole cent) _____

(3) The Supreme bakery purchased 9 dozen sheet pans for $126.45.

(a) How much did the pans cost per dozen? _____

(b) How much did each pan cost? (To the nearest whole cent) _____

(4) How many pounds of dough would be needed to produce 120 dozen rolls scaled at 1.75 oz. per roll? _____

(5) A recipe for pie crust called for 7 lbs. of shortening and 10 lbs. of flour. If the price of shortening was .49 a pound and the price of flour was .17 a pound, what was the cost of the ingredients? _____

(6) What is the cost of an ounce of poppy-seed filling if a pound costs $1.34? (To the nearest whole cent) _____

(7) If the ingredient cost of a 12-lb. batch of cookies comes to $5.25, what is the cost per lb.? (To the nearest whole cent) _____

(8) A customer bought
2 dozen rolls @ $1.05/doz.
6 cupcakes @ $.12
½ lb. of cookies @ $2.49/lb.
1 coffee ring @ $.95
Compute the customer's bill. _____

(9) If the customer in (8) paid for his order with a $20 bill, how much change did he receive? _____

(10) If jelly doughnuts retail at $.18 each and cream doughnuts at $.22 each, how much more would a customer have to pay for an order of 3 dozen doughnuts if he decided to get the cream-filled ones rather than the jelly-filled ones? _____

# PERCENTAGE IN BAKING

To a baker, knowing how to figure percentages is as important as knowing how to read a recipe.

In the baking industry, all formulas are based on the amount of flour in a recipe. For example, if a recipe calls for 2% sugar, that means 2% of the amount of flour.

Now 2% is just another way of writing the fraction $\frac{2}{100}$.

$$2\% = \frac{2}{100} = \frac{1}{50}$$

$$10\% = \frac{10}{100} = \frac{1}{10}$$

$$37\% = \frac{37}{100} = \frac{37}{100}$$

$$125\% = \frac{125}{100} = \frac{5}{4} = 1\frac{1}{4}$$

Any percent, then, can be written *as a fraction*. The denominator is always 100.

Percentages can be written *as decimal fractions* also.

$$2\% = \frac{2}{100} = .02$$

$$10\% = \frac{10}{100} = .10$$

$$37\% = \frac{37}{100} = .37$$

$$125\% = \frac{125}{100} = 1.25$$

If you look at the decimal in each case, you will see that we can get it from the percent by inserting a decimal point two places from the end of the number and dropping the % sign. Since a whole number like 37, for example, really means 37.¢ – with a decimal point at the end – we have really *moved the decimal point two places to the left.*

$$37\% = 37.\% = 37. = .37$$

Now why do we have to bother about all this? Why do we have to be able to express percents as fractions or as decimals?

Aha! I thought you'd ask that. The reason is simply this: *You cannot work problems using the percent itself.* You *must* change a percent to a fraction or a decimal first.

So let's practice doing just that.

A. Change these percents to fractions. Express them in lowest terms:

| | | | | | |
|---|---|---|---|---|---|
| 1. | 10% = $\frac{10}{100}$ = | $\frac{1}{10}$ | 6. | 4% | _____ |
| 2. | 25% | _____ | 7. | 80% | _____ |
| 3. | 75% | _____ | 8. | 33% | _____ |
| 4. | 15% | _____ | 9. | 5% | _____ |
| 5. | 37% | _____ | 10. | 100% | _____ |

B. Now change those same percents to decimals.

| | | | | | |
|---|---|---|---|---|---|
| 1. | 10% = 10.% = | .10 | 6. | 4% | _____ |
| 2. | 25% | _____ | 7. | 80% | _____ |
| 3. | 75% | _____ | 8. | 33% | _____ |
| 4. | 15% | _____ | 9. | 5% | _____ |
| 5. | 37% | _____ | 10. | 100% | _____ |

C. Now here are a few more to sharpen your teeth on. Change these to fractions (in their lowest terms) *and* to decimals.

| | | Fraction → | Decimal → |
|---|---|---|---|
| 1. | 90% = $\frac{90}{100}$ = | $\frac{9}{10}$ | .90 |
| 2. | 50% | | |
| 3. | 43% | | |
| 4. | 65% | | |
| 5. | 2% | | |
| 6. | 99% | | |
| 7. | 8% | | |
| 8. | 13% | | |
| 9. | 120% | | |
| 10% | 200% | | |

Let's get back to the formula that called for 2 percent sugar. That means 2% of the amount of flour. Let's say we are going to use 150 pounds of flour. How much sugar will we need? We must find *2% of 150.* This means we have to multiply 150 by 2%.

But we said just a short time ago that we cannot work problems by using percents themselves. That's still true. But it's really a snap. We can change the 2% to either . . . .

the fraction $\frac{2}{100}$

or the decimal .02

and multiply the 150 by either one.

$$150 \times \frac{2}{100} = \frac{150}{1} \times \frac{2}{100} = \frac{300}{100} = 3.00 = 3 \text{ lbs. of sugar}$$

OR

$$\begin{array}{r} 150 \\ \times\ .02 \\ \hline 3.00 \end{array} = 3 \text{ lbs. sugar}$$

No matter which one you choose to multiply by, you come up with the same answer.

O.K., let's try another. A recipe for hamburger buns calls for 60% water, and the baker is planning to use 175 pounds of flour. How much water will he need?

Either the fraction: $60\% = \frac{60}{100} = \frac{6}{10} = \frac{3}{5}$

Or the decimal: 60% = .60

Again, we'll do the problem two ways:

$$175 \times \frac{3}{5} = \frac{175}{1} \times \frac{3}{5} = \frac{525}{5} = 105 \text{ lbs. water}$$

Or

$$\begin{array}{r} 175 \\ \times\ .60 \\ \hline 105.00 \end{array} = 105 \text{ lbs. water}$$

In arithmetic you don't get many choices. But with percents you have a choice. Use *either the fraction or the decimal form.* – to multiply by – but never try to use the percent form itself!

Now for practice, find the amount of shortening if the formula for pastry calls for 50% shortening, and the baker plans to use 400 pounds of flour. Do the work here.

Did you get 200 pounds of shortening for your answer? Good! If not, we'll go over it together.

# PRACTICE YOUR SKILL IN PERCENTAGE

Work out the number of pounds of each ingredient in the following formulas, based on the number of pounds of flour indicated.

1. Formula for white bread. For 200 lbs. of flour:

| | |
|---|---|
| 55% water | _____ |
| 6% sugar | _____ |
| 6% milk powder | _____ |
| 2% salt | _____ |
| 6% yeast | _____ |
| 6% shortening | _____ |

2. Formula for bun dough. For 50 lbs. of flour:

| | |
|---|---|
| 22% sugar | _____ |
| 1% salt | _____ |
| 22% margarine | _____ |
| 5% dry milk | _____ |
| 15% whole eggs | _____ |
| 10% yeast | _____ |
| 45% water | _____ |
| ½% flavor | _____ |

3. Formula for frankfurter-roll dough. For 150 lbs. of flour:

| | |
|---|---|
| 10% sugar | _____ |
| 1½% salt | _____ |
| 3% milk powder | _____ |
| 7 % shortening | _____ |
| 53% water | _____ |
| 7% yeast | _____ |

Note: A percent may contain a decimal point.
For example, 12.5% means 12½%
6.25% means 6¼%
.35% means $\frac{35}{100}$ % (less than 1%)

If you had to change these to decimals, you would get:

| | | | |
|---|---|---|---|
| 12.5% | = | .125 | |
| 6.25% | = | .0625 | Note that you have to insert zeros in order to move the decimal point two places. |
| .35% | = | .0035 | |

# MORE PERCENTAGE IN BAKING

Sometimes in the baking industry the ingredients are given *by weight*, based on a certain amount of flour. For example, a recipe may call for 105 pounds of water to 175 pounds of flour. Now that's great if you are going to use 175 pounds of flour. But suppose you want to use only 100 pounds of flour – how do you figure out how much water to use?

Looks like we'll have to learn more about percents.

Before we tackle big numbers, it will be easier if we play with small numbers for a bit. Let's look at the numbers 4 and 5. Suppose I said, *what percent of 5 is 4?*

A problem of this sort is solved by dividing, with the "of" number in the denominator. We can set up a fraction first:

$$(\text{of})\frac{4}{5}$$

or we may simply divide:

$$\begin{array}{r} .80 \\ (\text{of})\ 5\ \overline{)\ 4.00} \\ \underline{40} \\ 00 \end{array}$$

We end up with a decimal. We need a percent.

All right – we'll get a percent from the decimal. We'll do the *reverse* of what we did in changing from a percent to a decimal. In changing from a percent to a decimal, we moved the decimal point two places to the left and we dropped the percent sign.

$$80\% = 80.\% \quad - \quad .80$$

Now we reverse the process. We move the decimal point two places to the *right* and *add* the percent sign.

$$.80 = 80.\% = 80\%$$

Here's another example: What percent is 12 of 96? Looks as if a fraction would be easier than dividing immediately.

$$(\text{of})\frac{12}{96} = \frac{1}{8}$$

Now we shall divide.

$$
\begin{array}{r}
.125 \\
8\overline{)1.000} \\
\underline{8} \\
20 \\
\underline{16} \\
40 \\
\underline{40}
\end{array}
$$

Move the decimal point in the answer two places to the right and add a percent sign:

.125 = 12.5%

Answer is 12.5% or 12½%

No matter how small or large the figures may be, we can always find what percent one number is of another by dividing.

What percent of 175 pounds of flour is 105 pounds of water?

(of) $\frac{105}{175}$ or $175\overline{)105.00}$ = 60% = 60%

$$
\begin{array}{r}
105\,0 \\
\hline
00 \\
\underline{00}
\end{array}
$$

Once we know the percent, we can figure out the amount of water to use for 100 pounds of flour.

100 lbs. of flour x 60% = 100 x .60 = 60 lbs.

A few for you to do . . . .

(1) A recipe calls for 6 lbs. of sugar to 200 lbs. of flour. The sugar is what percent of the flour? _____

(2) A recipe calls for 98 lbs. of water to 160 lbs. of flour. What percent water is that? _____

(3) The amount of yeast called for in a recipe is 1.5 lbs. to 150 pounds of flour. What percent yeast is that? _____

(4) A recipe for baking-powder biscuits calls for 1 lb. of sugar to 10 lbs. of flour.
(a) Find the percent that the sugar is of the flour. _____

(b) If you wished to make up a batch of the biscuits using 15 lbs. of flour, how much sugar would you use? _____

(5) What percent of 40 is 120? _____

# TO MAKE LIFE EASIER . . . .

Not only bakers, but everyone needs to know about percent. There are certain percents that are used so often in everyday business and just plain living that it pays to memorize their fraction and decimal equivalents. Below is a chart. Everyone who holds a high-school diploma should know these percents and decimals, just as he or she knows that there are 16 ounces in a pound or 12 pieces in a dozen. If someone woke you up in the middle of the night and said, "Quick! What does 20% equal?" you'd be able to reply immediately, without opening an eye, "One-fifth, or two-tenths."

Fraction–Percent–Decimal Equivalents

| | | | | | |
|---|---|---|---|---|---|
| $\frac{1}{2}$ | 50% | .50 or .5 | $\frac{1}{5}$ | 20% | .20 or .2 |
| $\frac{1}{4}$ | 25% | .25 | $\frac{2}{5}$ | 40% | .40 or .4 |
| $\frac{3}{4}$ | 75% | .75 | $\frac{3}{5}$ | 60% | .60 or .6 |
| $\frac{1}{3}$ | $33\frac{1}{3}\%$ | .333 | $\frac{4}{5}$ | 80% | .80 or .8 |
| $\frac{2}{3}$ | $66\frac{2}{3}\%$ | .667 | $\frac{1}{10}$ | 10% | .10 or .1 |
| $\frac{1}{8}$ | 12½% | .125 | $\frac{2}{10}$ | 20% | .20 or .2 |
| $\frac{3}{8}$ | 37½% | .375 | $\frac{3}{10}$ | 30% | .30 or .3 |
| $\frac{7}{8}$ | 62½% | .625 | etc. | | |

Even if you use a calculator to do all your arithmetic for you, you still need to know these equivalents. Calculators work only with decimals. If you have to multiply a certain number by, say, 5¾, it will save you a great deal of time if you know enough to just multiply by 5.75.

If you forget any of these equivalents, you can always divide out the fraction and find the decimal and the percent.

For example, if you need the percent for 7/8, you simply divide

$$\begin{array}{r} .875 \\ 8\overline{)7.000} \\ 64 \\ \hline 60 \\ 56 \\ \hline 40 \end{array} \quad = \quad 87.5\%$$

Now here's a tip. Suppose you forget which way to move the decimal point when changing from a decimal to a percent or vice versa. Get yourself a "favorite" part of a dollar – a dime or a quarter or a half-dollar. Let's say you like quarters.

¼ (the fraction, one-quarter) = $.25 (decimal) = 25% of a dollar

You can always come back to this to remind you how to change from one equivalent to another.

Time for you to get to work.

(1) Memorize the table on page 60.

(2) See how many of the empty spaces in this chart you can fill in without looking them up in the chart.

| Fraction | % | Decimal | Fraction | % | Decimal |
|---|---|---|---|---|---|
| 3/4 | | | | | .333 |
| | 20% | | 3/10 | | |
| | | .125 | | 25% | |
| | | .75 | | 60% | |
| | 50% | | | | .6 |
| 5/8 | | | 1/4 | | |
| 2/3 | | | 2/5 | | |
| | | .7 | | | .875 |

# PRACTICE YOUR SKILL
# IN PERCENTAGE

Note: In working these problems, use any way that is *easiest for you.* One problem may be easier if you use a fraction. Another may be easier if you use a decimal. Use your memorized equivalents whenever you can.

| | REVIEW PROBLEMS | ANSWERS |
|---|---|---|
| (1) | Find 8% of 24. | _____ |
| (2) | Find 75% of 24. | _____ |
| (3) | Find 12½% of 72. | _____ |
| (4) | What percent of 96 is 12? | _____ |
| (5) | What percent of 50 is 20? | _____ |
| (6) | What percent of 5 is 1.5? | _____ |
| (7) | Find 10% of $1.00 | _____ |
| (8) | Find 4½% of 250 | _____ |
| (9) | What percent of 75 is 100? | _____ |
| (10) | What percent of 150 is 30? | _____ |
| (11) | Find 1% of 4,526 | _____ |
| (12) | Find 50% of 76,544 | _____ |
| (13) | What percent is 15 of 200? | _____ |
| (14) | Find 60% of 30. | _____ |

Change the following common fractions to percent

| | | | | | |
|---|---|---|---|---|---|
| (15) | 3/4 | _____ | (18) | 1/20 | _____ |
| (16) | 2/3 | _____ | (19) | 5/8 | _____ |
| (17) | 1/6 | _____ | (20) | 7/12 | _____ |

1. Find 15% of 1200. _____

2. What percent of 300 is 60? _____

3. What percent of 16 is 18? _____

4. What is 37½% of 1,200? _____

5. If an apprentice who is paid $2.00 per hour receives an increase in wages of 6% per hour, what is his new hourly rate of pay?

_____

6. If a bill of $765.40 for flour is paid in 6 days, on the basis of a 2% discount if paid within 10 days, how much is paid?

_____

7. What is the weekly take-home pay of an apprentice who pays a total tax of 21% on his weekly wage of $78.50?

_____

8. During one day, the inspectors in a certain bakery rejected 33 pies as imperfect. If the bakery produced 2200 pies that day, what percent was rejected?

_____

9. A bakery saves $1,440 on the purchase of mixing-room equipment at a sale price. If the total bill had originally been $4000, what percent was saved?

_____

What did the bakery actually pay?

_____

10. If the percent of water in a formula is 62%, how much water will be used if a batch is being made up with 140 lbs. of flour?

_____

11. If the total time required for fermentation and proof of a dough is 4½ hours, and the first fermentation period is to be about 33% of the total time, how long is the first fermentation period?

_____

12. According to the percentage system of expressing formulas, what is the percentage of malt syrup in a formula that calls for 40 lbs. of flour and 1 lb. 8 oz. of malt syrup?

_____

13. If the percentage of wet gluten that is obtained from a given type of flour is 3 times the percentage of dry gluten obtainable from the flour, what is the percentage of dry gluten in the flour if 50 grams of flour yield 15 grams of wet gluten?

_____

14. A baker mixed a 962-lb. batch of dough, from which he planned to make five varieties of bread and rolls. How many pounds of dough did he allot for each variety if he made

(a) 22% of the dough into buns; _____

(b) 26% into pullman bread; _____

(c) 20% into white pan bread; _____

(d) 18% into cross pan bread; and _____

(e) the remainder into rolls? _____

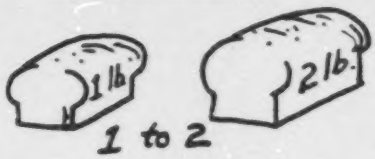
15. Baker O'Meary generally added a 70% markup to the ingredient cost to get his selling price. If the ingredients of sugar cookies came to .42 per pound, what would he sell them for?

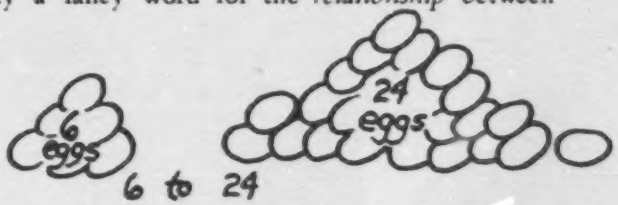
_____

A MEETING OF SUCCESSFUL BAKERS.
CAN YOU JOIN THE RANKS?

# RATIO AND PROPORTION FOR BAKERS

The word "ratio" is really a fancy word for the *relationship* between different numbers.




The ratio between the weight of a 1-pound loaf of bread and the weight of a 2-pound loaf of bread is 1 to 2. If one formula calls for 6 eggs, and another calls for 2 dozen eggs, the ratio between the number of eggs in the two formulas is 6 to 24 (two dozen). This can also be expressed as

$$\frac{6 \text{ eggs}}{24 \text{ eggs}} = \frac{6}{24} = \frac{1}{4} \quad \text{or} \quad 1 \text{ to } 4$$

We normally express a ratio in its lowest terms, so we would say it was 1 to 4.

A ratio is really a problem in division. Suppose a small bakery employs 5 bakers, and a large bakery employs 50; what is the ratio between the number of bakers in each?

$$\frac{5 \text{ bakers}}{50 \text{ bakers}} = \frac{1}{10} \quad \text{or} \quad 1 \text{ to } 10$$

Actually, we could look at the problem another way and say that the ratio is

$$\frac{50 \text{ bakers}}{5 \text{ bakers}} = \frac{10}{1} \quad \text{or} \quad 10 \text{ to } 1.$$

This means that, for every baker the small shop employs, the large bakery employs 10.

Suppose a bakery makes two types of rolls, dinner rolls weighing 8 ounces per dozen and hard rolls weighing 24 ounces per dozen. What is the ratio between the weights of the rolls?

$$\frac{8 \text{ ounces}}{24 \text{ ounces}} = \frac{1}{3} \quad \text{or} \quad 1 \text{ to } 3$$

Test your understanding. Write the ratio of:

1. 100 lbs. of flour to 200 pounds of flour. _____

2. 200 lbs. of flour to 100 pounds of flour. _____

3. 6 loaves to 36 loaves. _____

4. 6 cakes to 36 breads _____

5. 25 cents to a dollar _____

6. 10 pies to 40 cakes _____

7. 6-hour fermentation time to 4½-hour time _____

8. A quart measure (32 fl. oz.) to a pint measure (16 fl. oz.) _____

9. $1.00 to $.75 _____

10. Profit of $8000 to profit of $4000 _____

11. If a bakery turns out 10 loaves of white bread to each loaf of whole wheat bread, what is the ratio between the two types? _____

12. If a recipe calls for 2 pounds of flour to each pound of sugar, what is the ratio between the flour and sugar? _____

13. A recipe calls for a ratio of 2 teaspoons of vanilla to 3 teaspoons of almond extract. What is the ratio of vanilla to almond extract? _____

    What is the ratio of almond extract to vanilla? _____

14. A baker can produce 100 loaves per hour, and a new, high-speed divider can turn out 500 loaves per hour. What is the ratio between the machine's production and the man's? _____

15. What is the ratio of flour to sugar in a formula that calls for 100 pounds of each? _____

# PROPORTION

The reason ratio is so important is that it permits a baker to use the same formulas for different-size batches, to substitute one ingredient for another, and to handle many production problems. To solve these problems, very often the baker has to set one ratio equal to another. When one ratio is equal to another, we call this a *proportion.*

Actually, we used proportions back on page 25.

$\frac{6}{24} = \frac{1}{4}$ is a proportion. So is $\frac{5}{50} = \frac{1}{10}$

When two ratios are equal to each other, we can play around with the numbers a bit. Let's see how. We will multiply the numerator of one fraction by the denominator of the other. This is called *cross-multiplication.*

$\frac{6}{24} = \frac{1}{4}$ $6 \times 4 = 24$ That's interesting!

$24 \times 1 = 24$

Let's try another.

$\frac{10}{15} = \frac{2}{3}$ $10 \times 3 = 30$ Do you suppose that's just a coincidence?

$15 \times 2 = 30$

It's not a coincidence. Whenever you cross-multiply between two equal ratios, you get the same answer for each. This is what makes it possible to solve ratio problems easily.

Suppose you have a cake recipe which calls for 3 pounds of sugar to 4 pounds of flour. If you want to use 10 pounds of flour, how many pounds of sugar will you have to use? You might work out a percent, as we did before. Often, however, it is easier to set up a *proportion*, relating similar things to each other. In this case you might do it this way:

$$\frac{\text{no. of pounds of sugar}}{\text{10 pounds of flour}} = \frac{\text{3 lbs. of sugar}}{\text{4 lbs. of flour}}$$

In problems using proportion, it is easier if we use the letter X for the quantity we wish to find.

$$\frac{X}{10} = \frac{3}{4}$$

Now we will cross-multiply. The two products will equal each other.

$\frac{X}{10} = \frac{3}{4}$ 4 times $X = 3 \times 10$

or $4X = 30$

Now we have *4 times* a certain number equal to 30. To find the number, we must divide 30 by 4.

$$4X = 30$$

$$X = \frac{30}{4} = 7\frac{2}{4} = 7\frac{1}{2} \text{ lbs. of sugar}$$

Here's another problem.

If a machine can scale 24 pounds of dough in 10 seconds, how many pounds can be scaled in a minute?

$$\frac{\text{no. of pounds of dough}}{\text{1 minute}} = \frac{\text{24 pounds}}{\text{10 seconds}}$$

WARNING: In using proportions, we must be sure to use the same *units*. That is, we can compare pounds to pounds, but not to ounces; inches to inches, but not to feet; and seconds to seconds, but not to minutes.

Therefore we must substitute 60 seconds for the 1 minute in the above proportion. We will use X for the number of pounds of dough that we are trying to find.

$$\frac{X}{60} = \frac{24}{10}$$

Cross-multiply as before.

$$\frac{X}{60} = \frac{24}{10}$$

$$10X = 1440$$

Check: Does $\frac{144}{60}$ equal $\frac{24}{10}$ ?

Reduce to lowest terms: $\frac{12}{5}$ does equal $\frac{12}{5}$

Remember, when you set up a proportion, that the two ratios must really equal each other. You must compare things that have the same relationship, and your proportion must *make sense*. Check your answer in the proportion you set up, by replacing the X with your answers, as we just did above. But also see that the answer makes sense. If it doesn't, that tells you the proportion you set up must have been wrong.

In the problem above, for example, a machine that turns out 24 pounds in 10 seconds is producing roughly 2½ pounds each second. For 60 seconds, a figure of 144 pounds – well over 2 pounds per second – is quite reasonable.

One more problem to work out now:

If 8 men can produce 120 loaves of bread in an hour, how many loaves can 5 men produce in an hour?

Set up your own ratio here, cross-multiply, and get your answer. The class will go over the problem together.

One more hint: Proportion problems can usually be solved in more than one way. If you end up with an X on the right instead of on the left, don't let it throw you. Just divide as before. For example,

If $80 = 8X$

Then $\frac{80}{8} = X$, and $X = 10$

## NOW TACKLE THESE PROBLEMS

Find X in the following proportions:

1. $\frac{X}{10} = \frac{2}{5}$ _____

2. $\frac{X}{4} = \frac{15}{20}$ _____

3. $\frac{X}{6} = \frac{12}{9}$ _____

4. $\frac{2}{X} = \frac{10}{18}$ _____

5. $\frac{3}{5} = \frac{X}{25}$ _____

6. If an oven turns out 950 lbs. of bread in 2 hours, how many pounds will it produce in 8 hours? _____

7. Four bakers can produce 88 lbs. of bread in 1 hr. How many pounds can 6 bakers produce in the same length of time? _____

8. How many pounds of dough can be scaled in 30 seconds if it requires 4 seconds to scale 15 lbs.? _____

9. If a recipe calls for 20 ounces of whole eggs for enough custard filling for 8 pies, how many ounces of eggs will be needed for 12 pies? _____

10. A recipe for loaf cake that makes 20 cakes calls for 5 pounds of cake flour. If I need to make 25 cakes, how much flour will I use? _____

11. If a 10-lb. can of egg whites costs $3.90, what would be the cost of 15 lbs. of egg whites? _____

12. If Wayne earned $45 working 20 hours a week, what would he earn if he could put in 5 more hours each week? _____

13. A recipe making 5 dozen pieces of puff pastry requires 10 pounds of bread flour. How many pounds of flour would be needed for 100 pieces? _____

14. Five pounds of patent flour are needed for a recipe that makes 13 pounds of spritz cookies. How many pounds of flour would be needed for 20 pounds of cookies?

_____

15. The leavening agent specified in a certain formula is 2 lbs. of soda, to be used with buttermilk. If baking powder is to be substituted as a leavening agent, how much baking powder is needed if 5 lbs. of baking powder contain 1½ lbs. of soda?

_____

# Q U I C K  Q U I Z
## FOR
## FUTURE BAKERS

1. How many ounces are in a pound? _____
2. How many fluid ounces are in a cup? _____
3. How many fluid ounces are in a quart? _____
4. How many tablespoons are in a fluid ounce? _____
5. How many fluid ounces are in a pint? _____
6. How many fluid ounces are in a half cup? _____
7. How many teaspoons are in a tablespoon? _____
8. How many fluid ounces are in 1/4 cup? _____
9. How many ounces are in two pounds? _____
10. How many fluid ounces are in a pint? _____

# TO MAKE LIFE EASIER . . . .

Usually a baker weighs out his ingredients. To weigh correctly, he must know that

16 ounces (oz.) = 1 pound (lb.)

This is true whether he is weighing sugar or flour or shortening or eggs or apples.

However, there are some *approximate* weights that the baker also uses. It happens that, for several common ingredients that bakers use, 2 cups equals (approximately) 1 pound. So sometimes he uses cup measurements instead of the scale when baking.

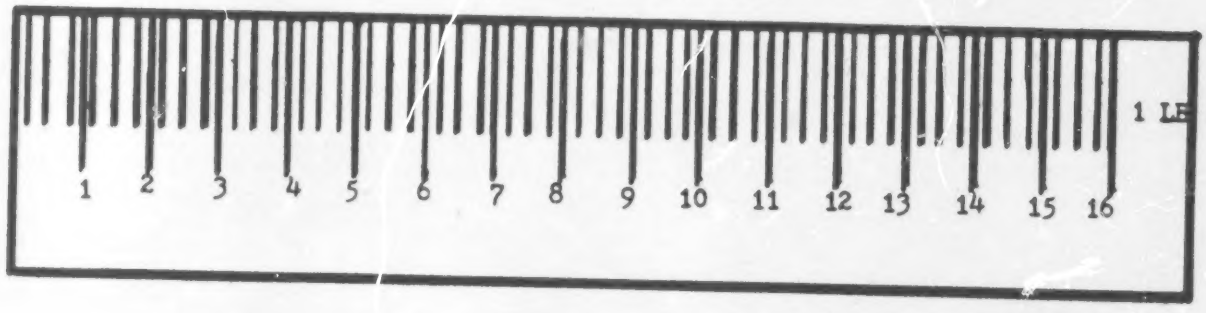
Approximate Equivalents

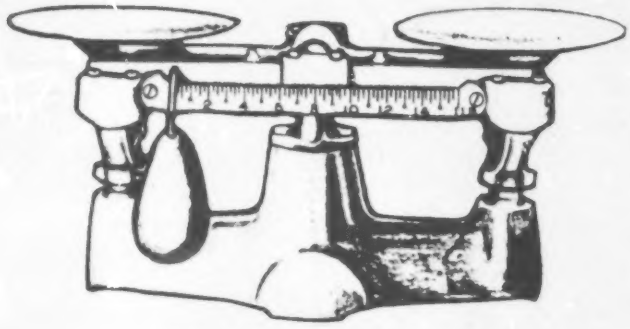
| | |
|---|---|
| 2 cups water or milk | = 1 pound |
| 2 cups granulated sugar (plus a bit more) | = 1 pound |
| 2 cups fat (plus a bit more) | = 1 pound |
| BUT . . . . | |
| 4 cups flour | = 1 pound |

## STUDY THIS PAGE

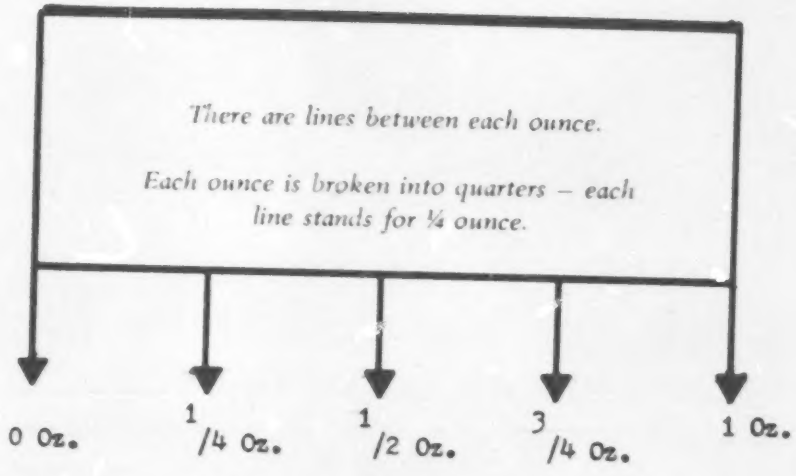
*A BAKER MUST KNOW HOW TO USE THE BAKER'S SCALE*

16-Oz. BAKER'S SCALE BAR



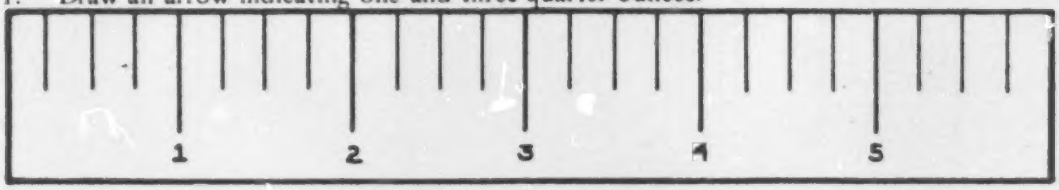
BAKER'S SCALE



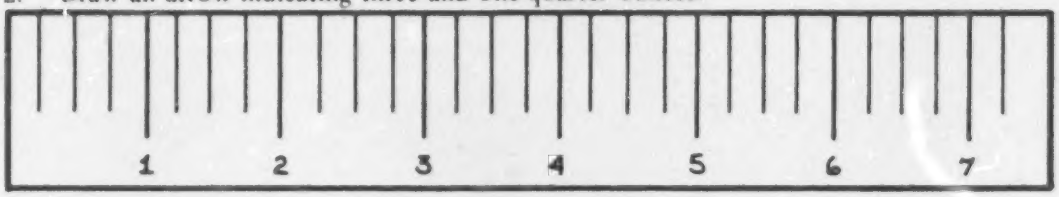
Below are the ounce bars of a baker's scale. Answer the five problems below. Write each number in the proper space at right.

NUMERICAL ANSWER HERE

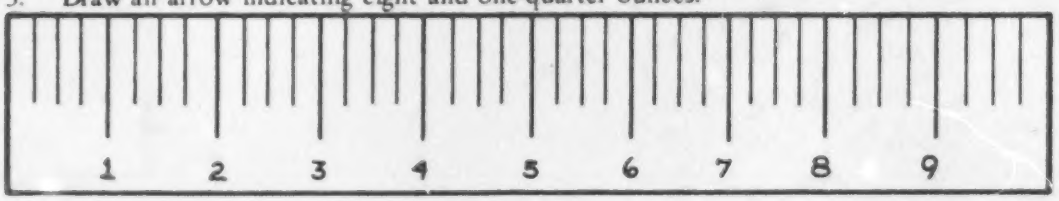
1. Draw an arrow indicating one and three-quarter ounces.



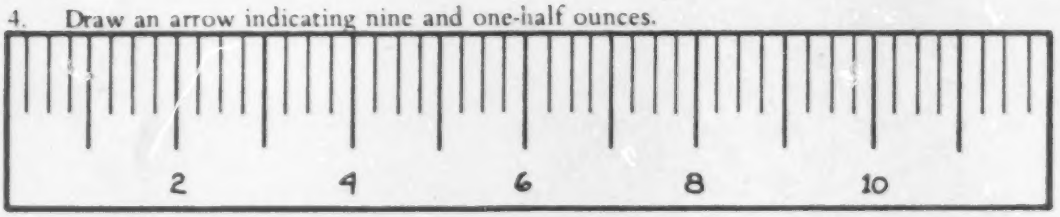

2. Draw an arrow indicating three and one-quarter ounces.



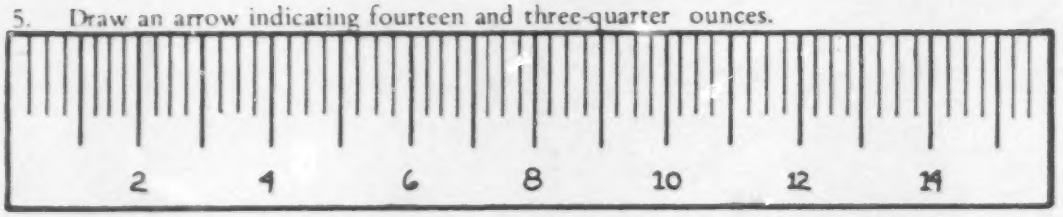

3. Draw an arrow indicating eight and one-quarter ounces.




4. Draw an arrow indicating nine and one-half ounces.

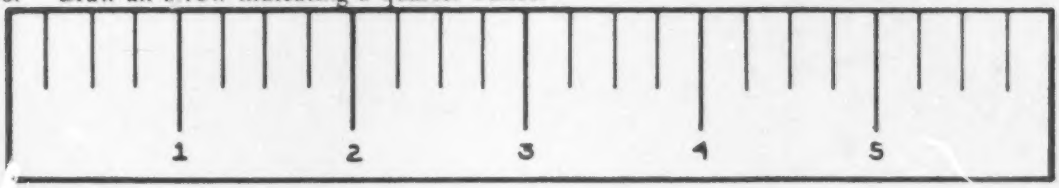



5. Draw an arrow indicating fourteen and three-quarter ounces.

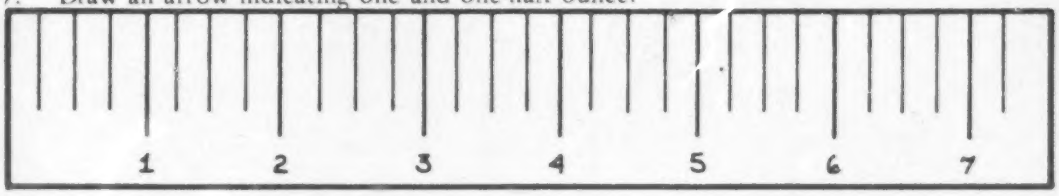


NUMERICAL ANSWER HERE

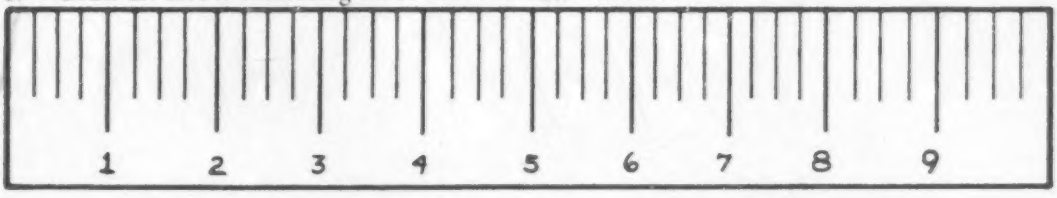
6. Draw an arrow indicating a quarter ounce.



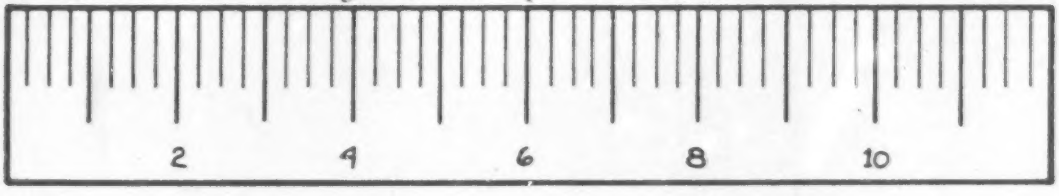

7. Draw an arrow indicating one and one-half ounce.



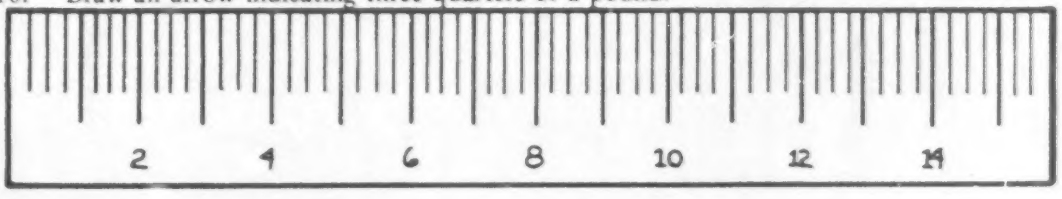

8. Draw an arrow indicating three and one-half ounces.




9. Draw an arrow indicating six and three-quarter ounces.

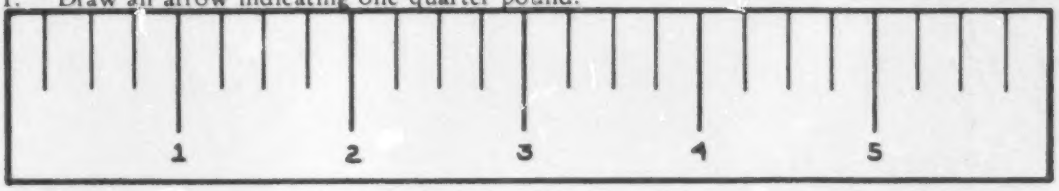



10. Draw an arrow indicating three-quarters of a pound.

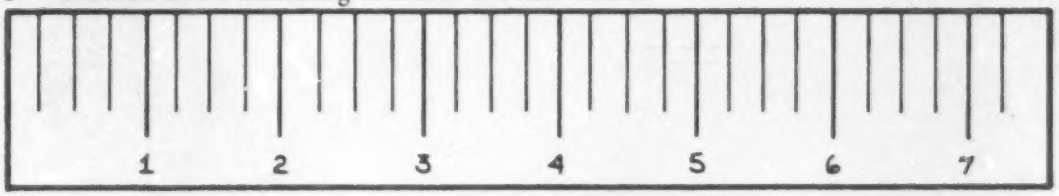


NUMERICAL ANSWER HERE

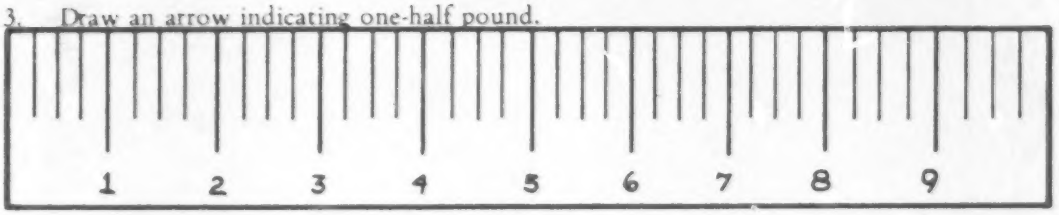
1. Draw an arrow indicating one quarter pound.



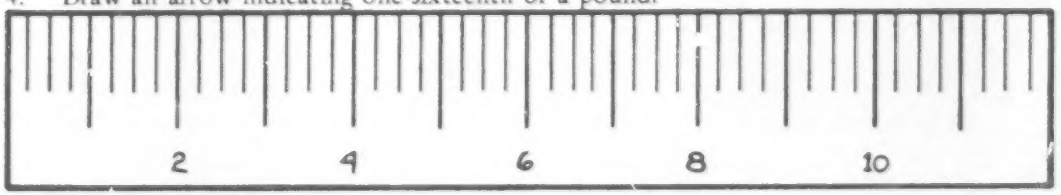

2. Draw an arrow indicating four and one-half ounces.



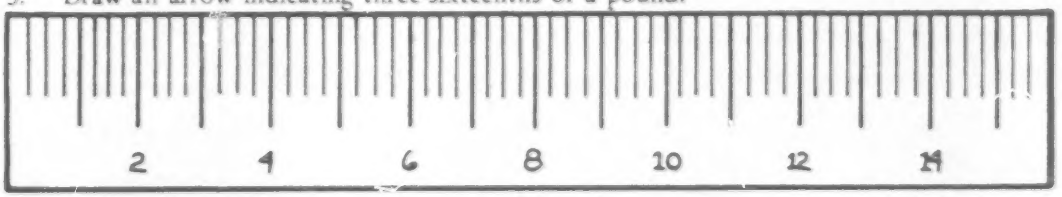

3. Draw an arrow indicating one-half pound.




4. Draw an arrow indicating one-sixteenth of a pound.




5. Draw an arrow indicating three-sixteenths of a pound.



# MORE MEASUREMENTS

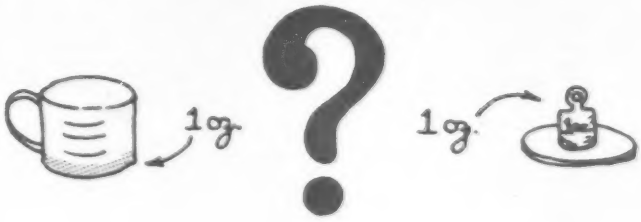
As you know, ounces and pounds are not the only measures that bakers use. Life is not that simple! A baker also uses measures of capacity, or volume.

**Measures of Capacity**
**(All measurements are level)**

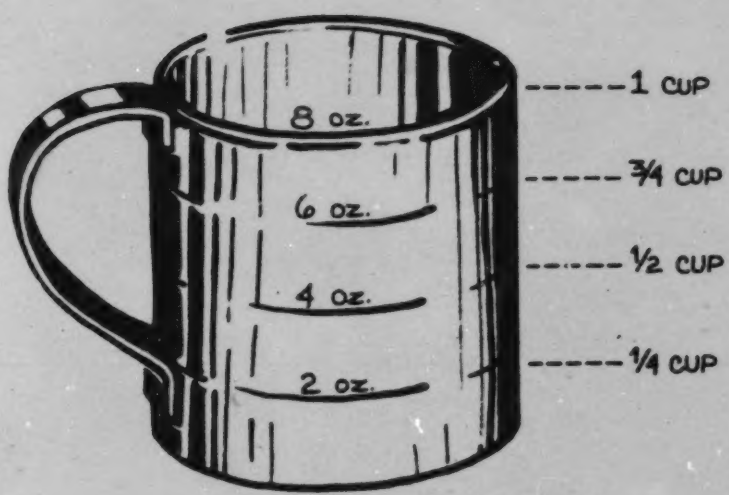
| | | |
|---|---|---|
| 3 teaspoons (t.) | = | 1 tablespoon (T. or tbs.) |
| 2 tablespoons | = | 1 fluid ounce (fl. oz.) |
| 8 fluid ounces | = | 1 cup (c.) |
| 2 cups | = | 1 pint (pt.) |
| 2 pints | = | 1 quart (qt.) |
| 4 cups | = | 1 quart (qt.) |
| 4 quarts | = | 1 gallon (gal.) |

This would not be too hard to work with except for the *ounce*. Unfortunately, in our system of measurements there are two different ounces. One is a unit of weight: 16 of these ounces make a *pound*. The other is the *fluid ounce*, which is a measure of capacity or volume: 16 of the fluid ounces make a *pint*.

For *most liquids*, 1 fluid ounce is *approximately equal* to 1 ounce of weight. However, this is not true for most solids – certainly not for air-filled products like flour, cocoa, or ground spices.

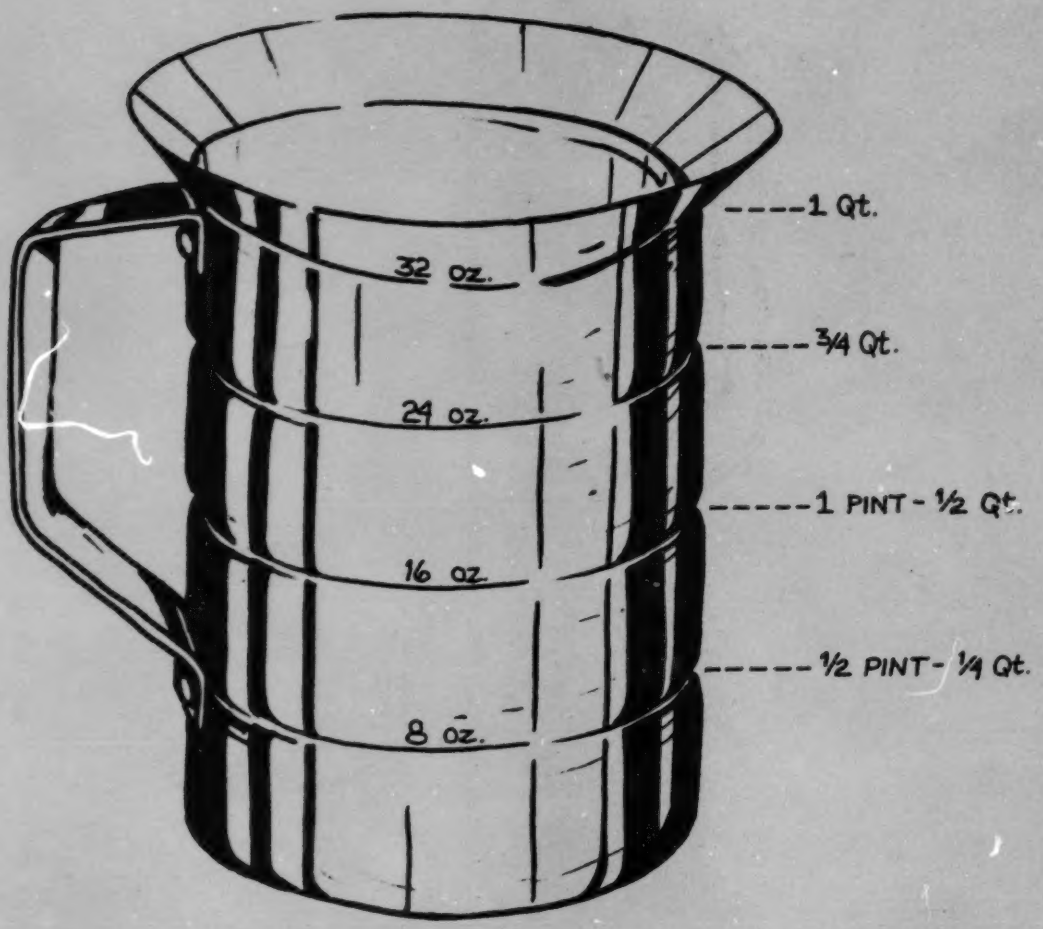


# FOR STUDY



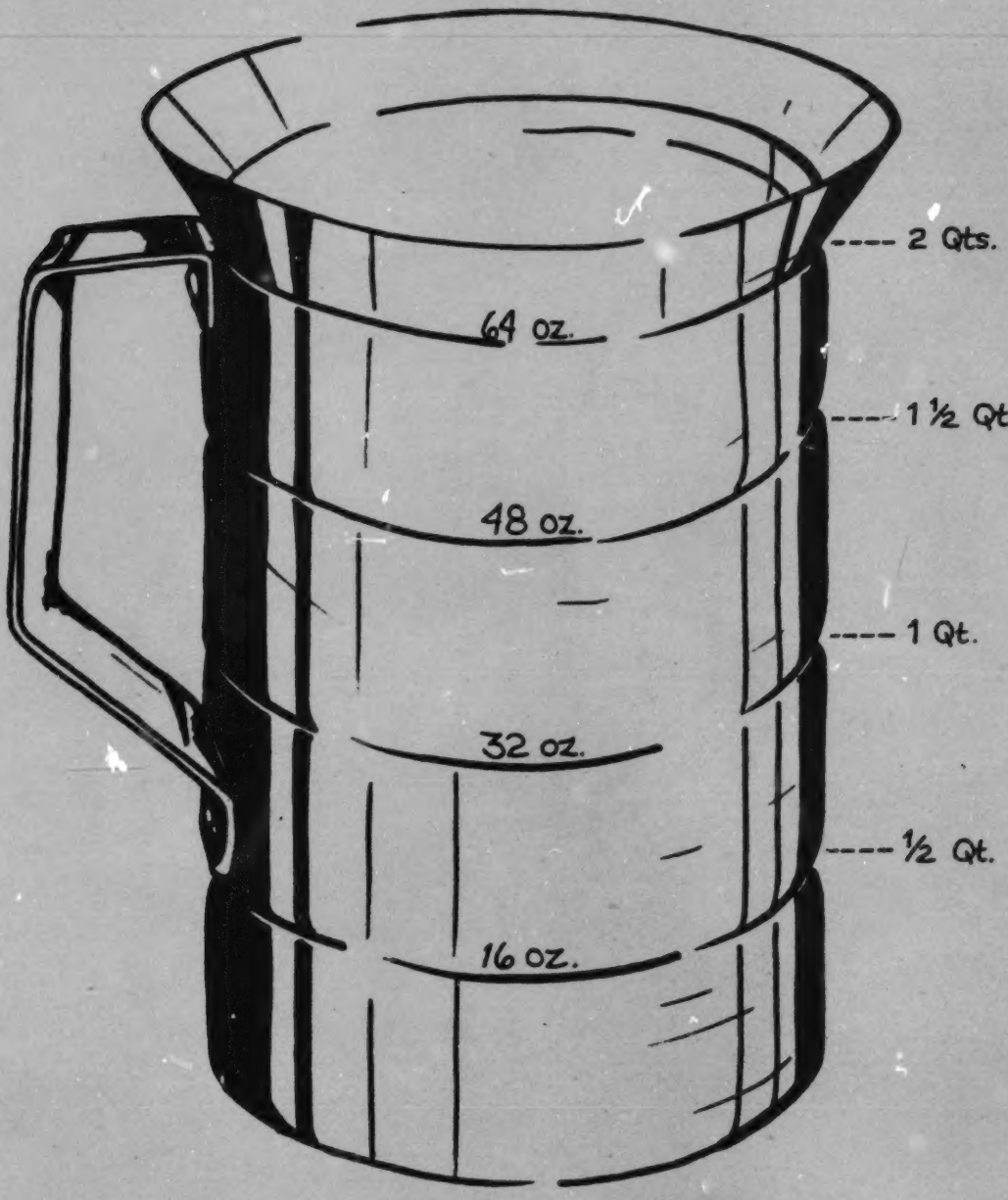

# 1-CUP MEASURE

# FOR STUDY



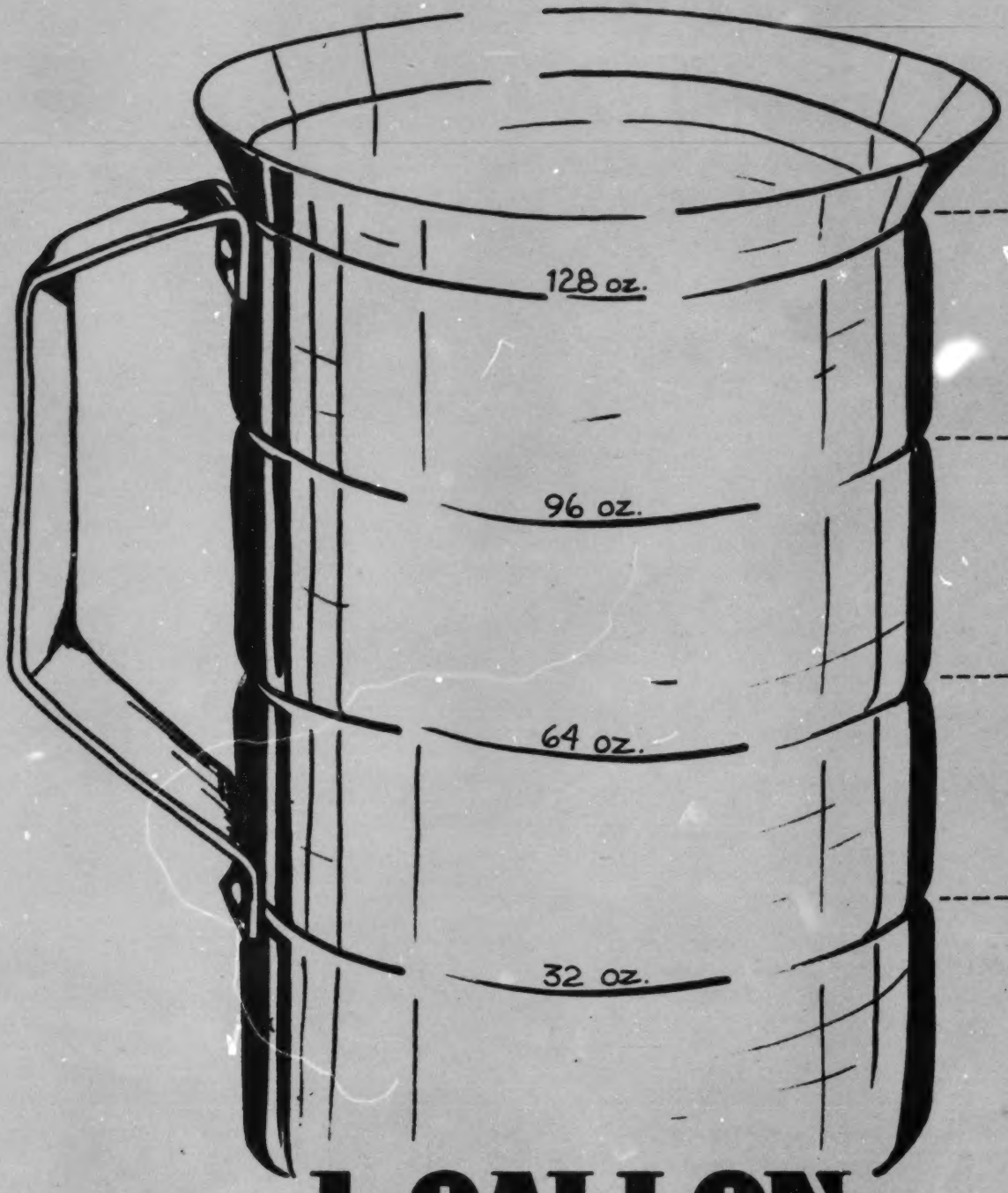

# 1-QT. MEASURE

# FOR STUDY




# 2-QT. MEASURE

# FOR STUDY




# 1-GALLON MEASURE (4-QT.)

HOW MANY OUNCES ARE IN 1/4 CUP ?

USING PENCIL, FILL IN TO THE 1/4-CUP LINE.

ANS._____

# 1-CUP MEASURE

HOW MANY OUNCES ARE IN 1/2 CUP?

USING PENCIL, FILL IN TO THE 1/2-CUP LINE.

ANS. _____

# 1-CUP MEASURE

HOW MANY OUNCES ARE IN 3/4 CUP?

USING PENCIL, FILL IN TO THE 3/4-CUP LINE.

ANS._____

# 1-CUP MEASURE

HOW MANY OUNCES IN ONE QUART?

_____

WHAT PART OF A QUART IS 24 OUNCES?

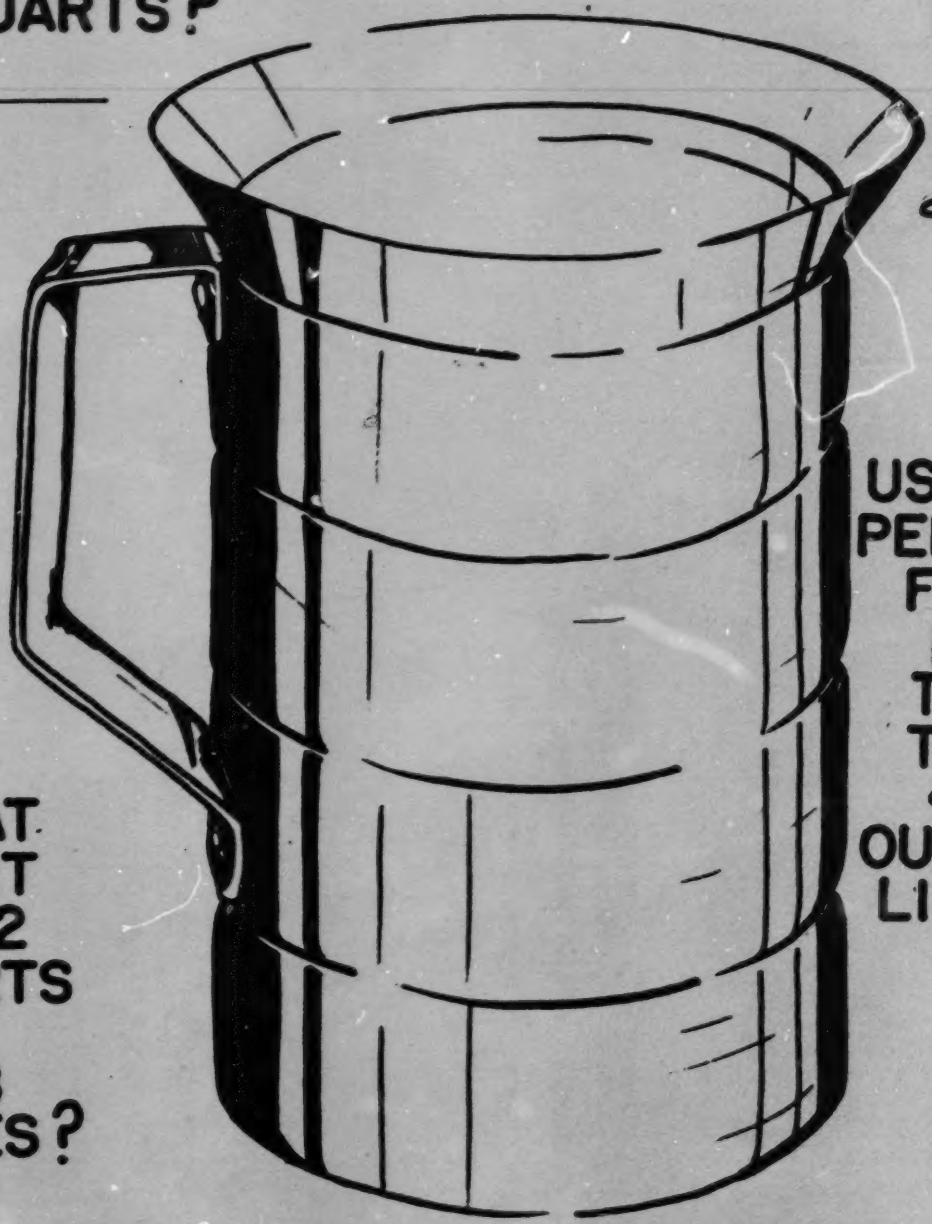
_____

USING PENCIL, FILL IN TO THE 24-OUNCE LINE.

# 1-QT. MEASURE

HOW MANY OUNCES IN 2 QUARTS?

_____



USING PENCIL, FILL IN TO THE 48-OUNCE LINE.

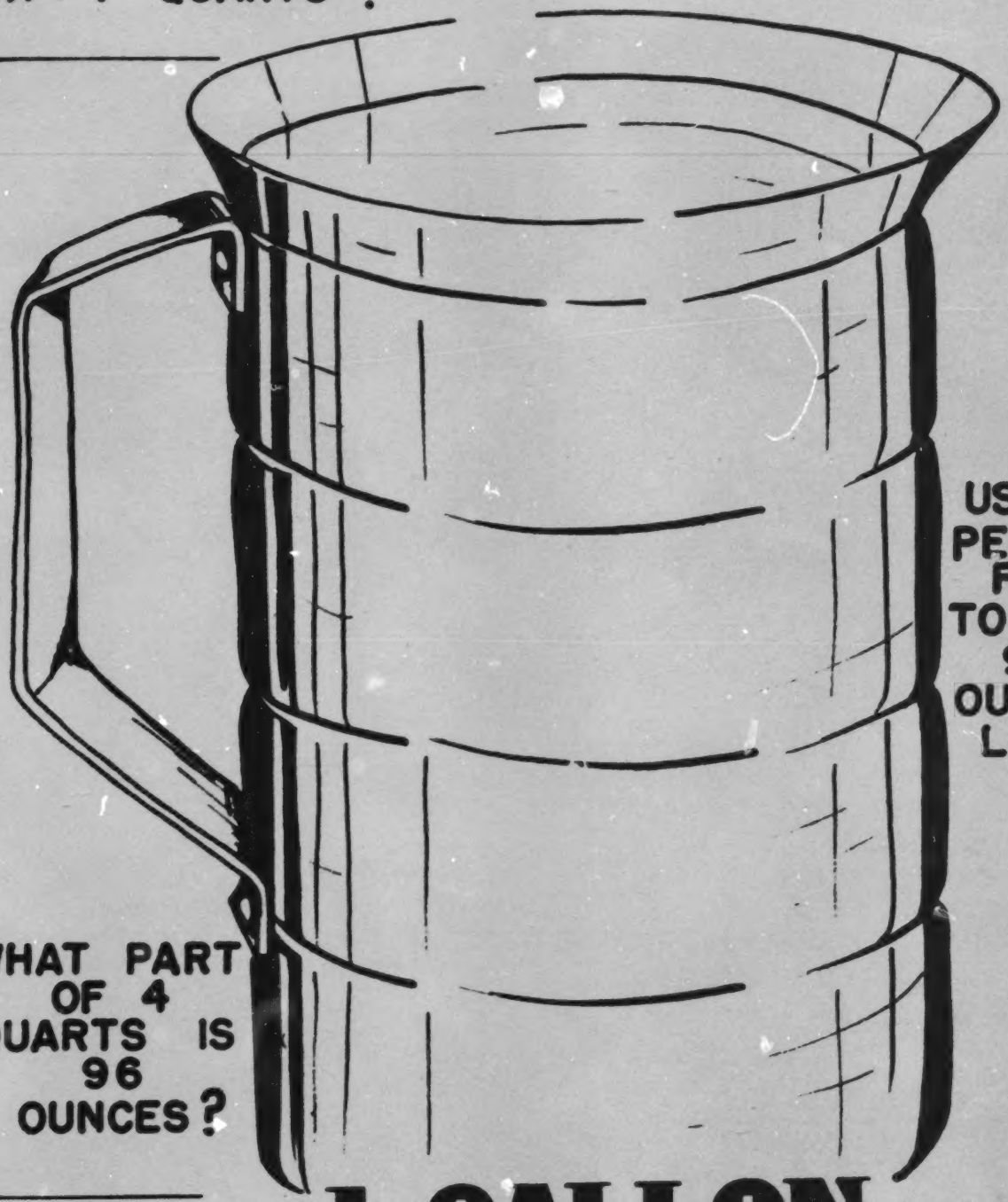
WHAT PART OF 2 QUARTS IS 48 OUNCES?

_____

# 2-QT. MEASURE

HOW MANY OUNCES IN 4 QUARTS ?

_____



USING PENCIL, FILL TO THE 96-OUNCE LINE.

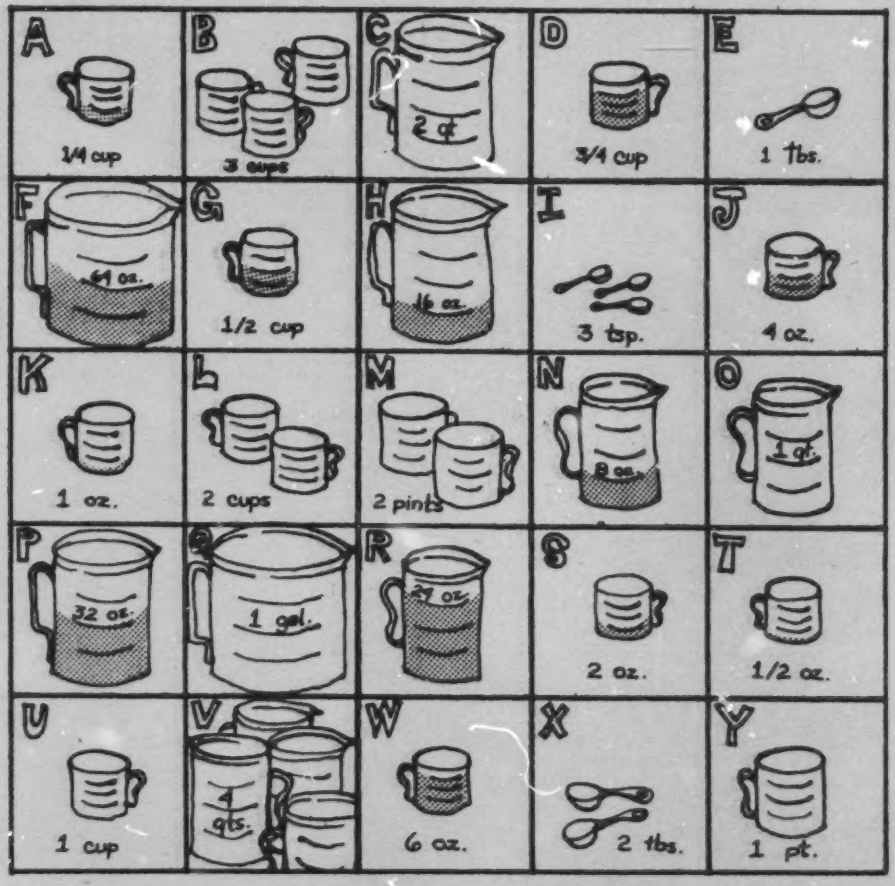
WHAT PART OF 4 QUARTS IS 96 OUNCES?

_____

# 1-GALLON MEASURE (4-QT.)

## A HEADCRUSHER

Here is a chart full of measurements. Some of them are equal to others. Fill in the *letters* of any other measurements equal to those of the letters listed below.




A –
B –
C –
D –
E –
F –
G –
H –

I –
J –
K –
L –
M –
N –
O –
P –
Q –

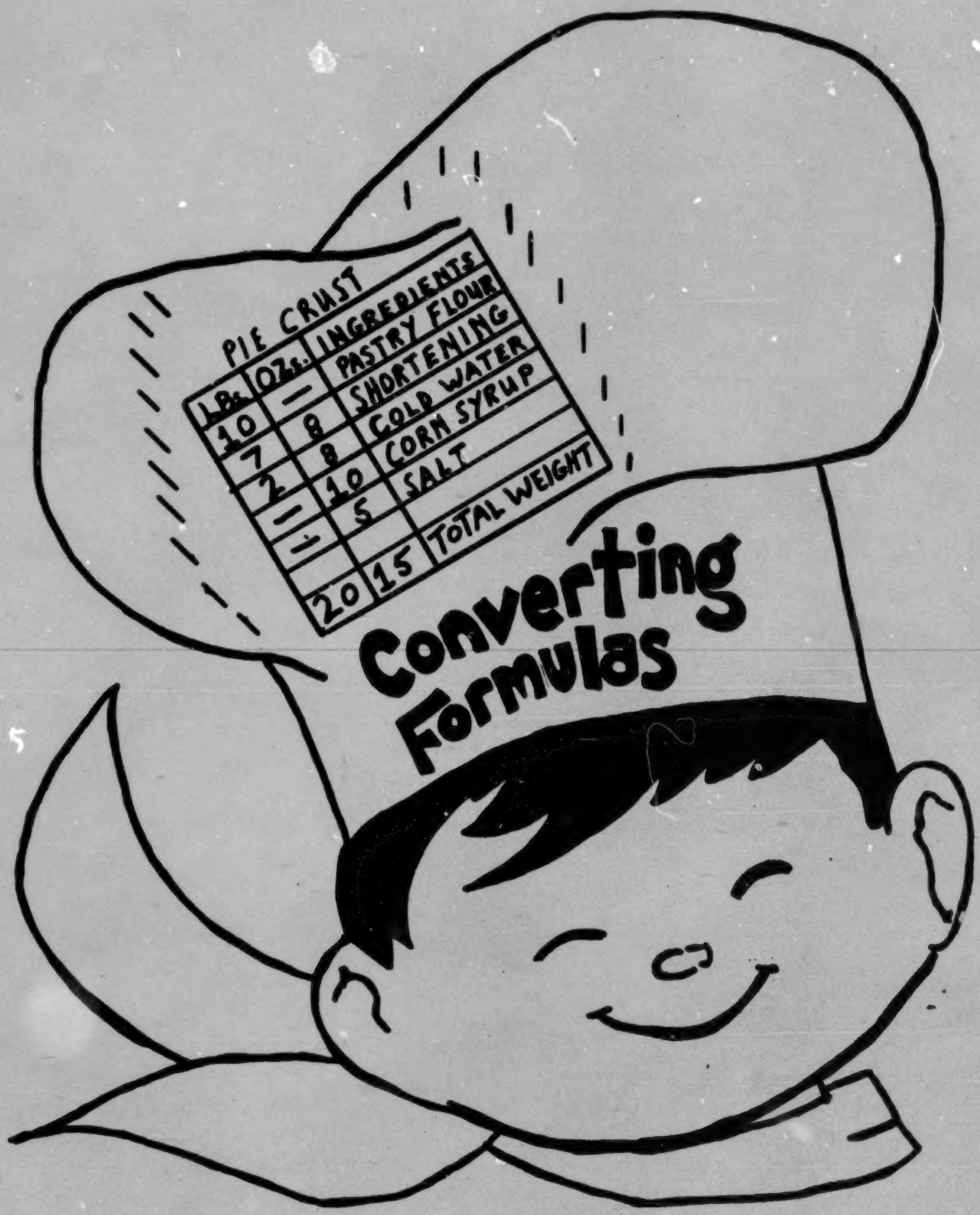
R –
S –
T –
U –
V –
W –
X –
Y –



1v7

## CONVERSION CHART
(Approximate Weights and Measures)

| | WEIGHT | | MEASURE |
|---|---|---|---|
| Baking powder | 1 oz. | = | 2½ tablespoons |
| Baking soda | 1 oz. | = | 2 tablespoons |
| Cream of tartar | 1 oz. | = | 3 tablespoons |
| Eggs, whole | 1 lb. | = | 2 cups |
| Eggs, whites | 1 lb. | = | 2 cups |
| Eggs, yolks | 1 lb. | = | 2 cups |
| Flour (sifted) | 1 lb. | = | 4½ cups |
| Milk, powdered | 1 lb. | = | 4 cups |
| Oil | 7 oz. | = | 1 cup |
| Salt | 1 oz. | = | 2 tablespoons |
| Shortening | 1 lb. | = | 2½ cups |
| Sugar, brown | 1 lb. | = | 3 cups |
| Sugar, granulated | 1 lb. | = | 2¼ cups |
| Sugar, powdered | 1 lb. | = | 3½ cups |
| Vanilla | 1 oz. | = | 2 tablespoons |
| Water | 1 lb. | = | 2 cups |
| Cocoa | 1 lb. | = | 4¼ cups |
| Honey | 11 oz. | = | 1 cup |
| Cinnamon, ground | 1 oz. | = | 4½ tablespoons |
| Mace, ground | 1 oz. | = | 4 tablespoons |
| Milk, liquid | 1 lb. | = | 2 cups |
| Cardamon, ground | 1 oz. | = | 4 tablespoons |
| Lemon juice | 1 oz. | = | 2 tablespoons |
| Nutmeats, chopped | 4 oz. | = | 1 cup |
| Cake crumbs | 3 oz. | = | 1 cup |




THIS BAKER KNOWS HOW TO USE HIS HEAD

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# CONVERTING BAKERY FORMULAS

## Introduction

The following pages will help to develop your skills in converting bakery formulas. Figuring the CORRECT AMOUNT of bakery products needed at any given time is the sole responsibility of the baker. A good baker need never over-produce because he figured the wrong amounts. A good baker never has to make the same thing twice in order to fill an order.

In this chapter you are given the opportunity to develop into an accurate baker.

To complete the formula below, you must fill in the proper amount of granulated sugar.

Answer_____

ALMOND FILLING

| Lbs. | Oz. | Ingredients |
|---|---|---|
| 1 | – | Almond paste |
| 1 | – | High-Ratio shortening |
| | | Granulated sugar |
| – | 2 | Egg whites |
| – | 4 | Patent flour |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| 3 | [illegible] | ← TOTAL WEIGHT → |

To complete the formula below you must fill in the proper amount of patent flour.

Answer _____

STREUSEL TOPPING

| Lbs. | Oz. | Ingredients |
|---|---|---|
| | | Patent flour |
| 2 | – | All-purpose shortening |
| – | 1 | Lemon flavor |
| 3 | – | Granulated sugar |
| | 1 | Salt |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| 10 | 2 | ← TOTAL WEIGHT → |

# This is a problem in MULTIPLICATION.

## DOUBLE THIS FORMULA

Fill in the required weight of each ingredient.

What number will you use to multiply by? _____

SPRITZ COOKIES — For Double Recipe

| Lbs. | Oz. | Ingredients | Lbs. | Oz. |
|---|---|---|---|---|
| 2 | – | Granulated sugar | | |
| 5 | – | All-purpose shortening | | |
| – | 1 | Salt | | |
| 1 | – | Egg whites | | |
| – | 1 | Flavor | | |
| 5 | – | Patent flour | | |
| | | | | |
| | | | | |
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| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| 13 | 2 | ← TOTAL WEIGHT → | | |

The formula below is enough to make 200 sugar cookies.

How many times this mix will it take to make 1200 cookies? _____

Fill in the amount of each ingredient needed.

SUGAR COOKIES

| Lbs. | Oz. | Ingredients | Lbs. | Oz. |
|---|---|---|---|---|
| 1 | – | Granulated sugar | | |
| – | ¼ | Salt | | |
| – | 1 | Non-fat dry milk | | |
| – | 12 | All-purpose shortening | | |
| – | 1 | Corn syrup | | |
| – | 4 | Whole eggs | | |
| – | 6 | Water | | |
| – | ½ | Vanilla | | |
| 2 | – | Cake flour | | |
| – | 1 | Baking powder | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| 4 | 9¾ | ← TOTAL WEIGHT → | | |

How many times this mix will be needed to make 26 lbs. 14 ozs. of these biscuits? _____

Fill in the amount of each ingredient needed.

BAKING POWDER BISCUITS

| Lbs. | Oz. | Ingredients | Lbs. | Oz. |
|---|---|---|---|---|
| 1 | 4 | Cake flour | | |
| 1 | 4 | Bread flour | | |
| – | 4 | Granulated sugar | | |
| – | ¾ | Salt | | |
| – | 2¼ | Baking powder | | |
| 1 | – | Prep (liquid shortening) | | |
| – | 3 | Non-fat dry milk | | |
| 1 | 4 | Water (variable) | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| 5 | 6 | ← TOTAL WEIGHT → | 26 | 14 |

The formula below will yield approximately 66 rolls.

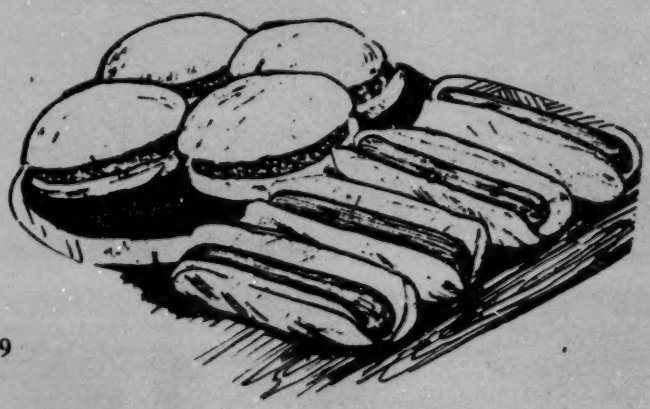
You have an order for 22 dozen rolls.

By what number will you have to multiply each ingredient? _____

HAMBURGER – FRANKFURTER-ROLL DOUGH

| Lbs. | Oz. | Ingredients | Lbs. | Oz. |
|---|---|---|---|---|
| – | 6 | Granulated sugar | | |
| – | 1 | Salt | | |
| – | 2 | Non-fat dry milk powder | | |
| – | 4 | Regular shortening | | |
| 2 | – | Cold water | | |
| – | 4 | Yeast | | |
| 3 | 12 | Patent flour | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| 6 | 13 | ← TOTAL WEIGHT → | | |

2 dozen rolls are baked on one pan.
How many pans will you need to bake 22 dozen? _____



You are asked to make only 7 pounds of buttercream.

By what number will you have to multiply each ingredient?_____

Fill in the amount of each ingredient needed.

BUTTERCREAM ICING

| Lbs. | Oz. | Ingredients | Lbs. | Oz. |
|---|---|---|---|---|
| 2 | 8 | High-ratio shortening | | |
| – | 1 | Salt | | |
| 1 | 12 | Egg whites | | |
| – | 1 | Flavor | | |
| 10 | – | 6X Powdered sugar | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
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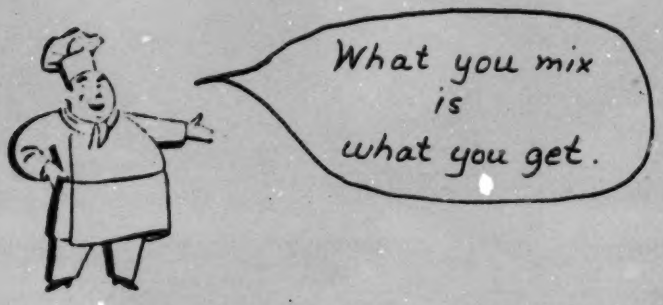
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| 14 | 6 | ← TOTAL WEIGHT → | | |

If we need 8 ounces of buttercream to ice each 7-inch layer cake, how many layers can be iced with your total mix?

_____



You have an order for 45 fruit-filled pies, at 7 ounces for each top and each bottom.
How many times each ingredient will you have to use? _____

PIE CRUST (FRUIT FILLED)

| Lbs. | Oz. | Ingredients | Lbs. | Oz. |
|---|---|---|---|---|
| 10 | – | Pastry flour | | |
| .7 | – | All-purpose shortening | | |
| 3 | 8 | Cold water | | |
| – | 5 | Salt | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| 20 | 13 | ← TOTAL WEIGHT → | | |

The weight of the pie crust for each pie is 14 ounces.
The total weight of the completed pie is 1 pound and 8 ounces.
How much fruit filling will you put into each pie?_____ ounces

An order is given for 46 dozen cupcakes, at 1½ ounces each.

You decide to make 2½ times the formula and some left over.

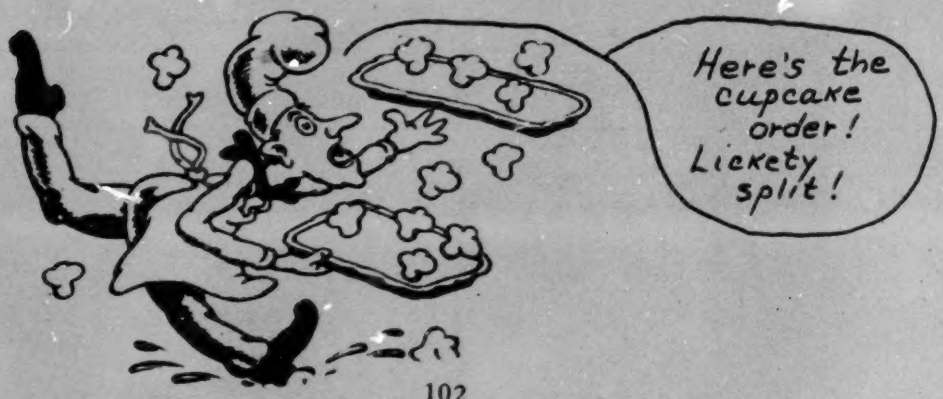
Fill in the amount of each ingredient needed.

WINDSOR GOLD CAKE

| Lbs. | Oz. | Ingredients | Lbs. | Oz. |
|---|---|---|---|---|
| 5 | – | Cake flour | | |
| 3 | 8 | High-ratio shortening | | |
| 6 | 4 | Granulated sugar | | |
| – | 3 | Salt | | |
| – | 5 | Baking powder | | |
| 2 | – | Water | | |
| – | 7 | Non-fat dry milk powder | | |
| 4 | 8 | Whole eggs | | |
| 1 | 5 | Water | | |
| – | 3 | Vanilla flavor | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| 23 | 11 | ← TOTAL WEIGHT → | | |

How much mix will be over the needed amount for the order? _____

What will you do with the leftover mix? _____



## You have an order for 84 custard pies.

If each pie requires 14 ounces of custard filling, you will have to multiply each ingredient by _____

CUSTARD PIE FILLING

| Lbs. | Oz. | Ingredients | Lbs. | Oz. |
|---|---|---|---|---|
| 1 | 4 | Granulated sugar | | |
| – | ¼ | Salt | | |
| – | 8 | Non-fat dry milk | | |
| – | 2 | Corn starch | | |
| 1 | 4 | Whole eggs | | |
| 4 | – | Water | | |
| – | 1 | Vanilla | | |
| – | 3 | Melted butter (optional) | | |
| | | | | |
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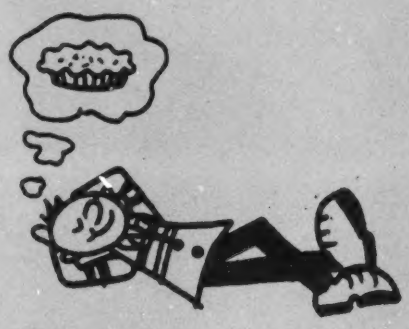
| | | | | |
| 7 | 6¼ | ← TOTAL WEIGHT → | | |



**Your production order calls for 40 buns. Each bun is scaled at 2 ounces.**

How many times will you have to multiply this formula?

Fill in the amount of each ingredient needed

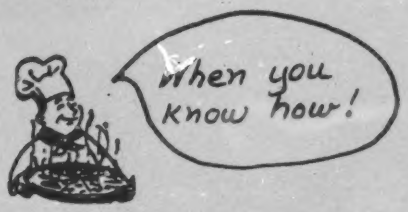
SWEET DOUGH

| Lbs. | Oz. | Ingredients | Lbs. | Oz. |
|---|---|---|---|---|
| 1 | – | Granulated sugar | | |
| 1 | – | Margarine | | |
| – | 1 | Salt | | |
| 3 | – | Bread flour | | |
| 1 | 8 | Pastry flour | | |
| – | 4 | Non-fat dry milk | | |
| – | 12 | Whole eggs | | |
| 2 | 1 | Water | | |
| – | 8 | Yeast | | |
| – | 2 | Lemon flavor | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| 10 | 4 | ← TOTAL WEIGHT → | | |

## You need 150 pizza pies for today's business.

**Each pie is scaled at 7 ozs. How many times will you have to multiply this formula to get the amount needed?**

_____




**Fill in the amount of each ingredient.**

PIZZA DOUGH

| Lbs. | Oz. | Ingredients | Lbs. | Oz. |
|---|---|---|---|---|
| 7 | – | High-gluten flour | | |
| 4 | – | Cold water | | |
| – | 1 | Yeast | | |
| – | 2 | Salt | | |
| | | | | |
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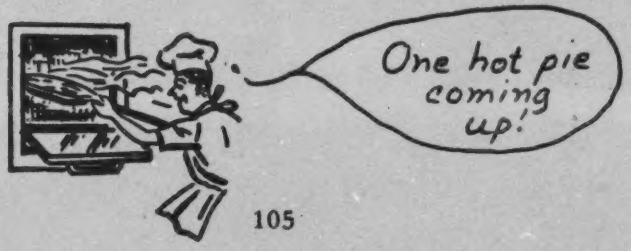
| | | | | |
| | | | | |
| 11 | 3 | ← TOTAL WEIGHT → | | |




105

## Each twist bread is scaled at one pound.

Your production sheet calls for 520 breads.
How many times will you have to multiply this formula? _____

Fill in the amount of each ingredient needed

JEWISH TWIST BREAD (CHOLLE)

| Lbs. | Oz. | Ingredients | Lbs. | Oz. |
|---|---|---|---|---|
| 100 | – | High-gluten flour | | |
| 54 | – | Cold water | | |
| 1 | 12 | Salt | | |
| 4 | – | Granulated sugar | | |
| 1 | – | Malt | | |
| 1 | 12 | Yeast | | |
| 5 | – | Vegetable oil | | |
| 6 | – | Whole eggs | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| 173 | 8 | ← TOTAL WEIGHT → | | |

**To make 215 loaf cakes, weighing 18 ounces each, how many times will you have to multiply this formula?**

**Fill in the amount of each ingredient needed here**

WHITE POUND CAKE

| Lbs. | Oz. | Ingredients | Lbs. | Oz. |
|---|---|---|---|---|
| 5 | – | Cake flour | | |
| 3 | 4 | High-ratio shortening | | |
| 6 | 4 | Granulated sugar | | |
| – | 3 | Salt | | |
| – | 2½ | Baking powder | | |
| 2 | – | Water | | |
| – | 8 | Non-fat dry milk powder | | |
| 3 | 4 | Egg whites | | |
| 1 | – | Water | | |
| – | 1 | Vanilla flavor | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| 21 | 10½ | ← TOTAL WEIGHT → | | |

COSTING
FORMULAS

# COSTING FORMULAS

## Introduction

For any business, but especially one like the baking business, the cost of the raw materials is the key to survival. The baker must constantly keep abreast of how much his raw materials cost, so that he can make a legitimate profit. From his sales, he must pay such items as the rent, utilities, insurance, and depreciation of equipment (called *overhead*), as well as wages and the cost of ingredients. You do not have to be an employer to be aware of costs; even as a bakery worker you should have an interest in where your salary comes from.

Our families depend on our ability to know and give as much as we can. So let's all try to be well informed, productive bakery workers.

## SAMPLE:

*Fill in the cost of each ingredient.*

Note: First do the arithmetic. Then, if the decimal fraction does not come out even, increase the number of cents by 1 if the figure in the *next* place is *5* or more. Drop the figure if it is less than 5. For example, $.055 or $.057 would be $.06, but $.054 would be $.05.

## SPRITZ COOKIES

| Lbs. | Oz. | Ingredients | As Purchased | Purchase Price | Ingredient Cost |
|---|---|---|---|---|---|
| 2 | – | Granulated sugar | 100-lb. bag | $19.50 | $ .39 |
| 5 | – | All-purpose shortening | 50-lb. cube | $32.50 | $3.25 |
| – | 1 | Salt | 100-lb. bag | $ 6.00 | – |
| 1 | – | Egg whites | 10-lb. can | $ 3.80 | $ .38 |
| – | 1 | Flavor | 8-lb. jug | $ 3.30 | $ .03 |
| 5 | – | Patent flour | 100-lb. bag | $14.50 | $ .73 |
| | | | | | |
| | | | | | |
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| | | | | | |
| | | | | | |
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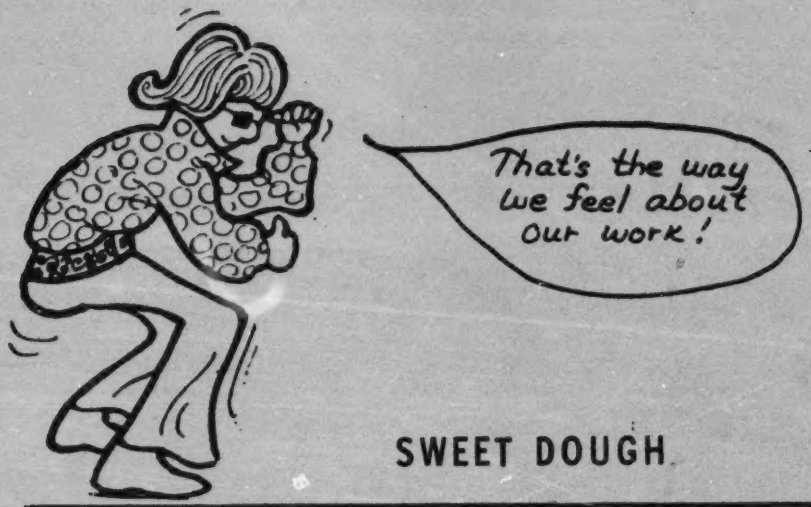
| | | | | | |
| | | | | | |
| 13 | 2 | TOTAL WEIGHT | TOTAL COST OF FORMULA | | $4.78 |




## SWEET DOUGH

*Fill in the cost of each ingredient*

| Lbs. | Oz. | Ingredients | As Purchased | Purchase Price | Ingredient Cost |
|---|---|---|---|---|---|
| 4 | – | Granulated sugar | 100-lb. bag | $20.00 | |
| 4 | – | Margarine | 50-lb. cube | $20.50 | |
| – | 4 | Salt | 100-lb. bag | $ 6.00 | |
| 12 | – | Bread flour | 100-lb. bag | $15.20 | |
| 6 | – | Pastry flour | 100-lb. bag | $15.85 | |
| 1 | – | Non-fat dry milk | 50-lb. bag | $39.00 | |
| 3 | – | Whole eggs | 30-lb. can | $17.50 | |
| 8 | 4 | Water | Metered | Billed Mo. | – |
| 2 | – | Yeast | 50-lb. case | $17.50 | |
| – | 8 | Lemon flavor | 8-lb. jug | $ 5.35 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 41 | | TOTAL WEIGHT | TOTAL COST OF FORMULA | | |

Each pound of mix yields 7 buns.

At a markup of 55%, how much would each bun sell for? _____

## CUSTARD PIE FILLING

*Fill in the cost of each ingredient*

| Lbs. | Oz. | Ingredients | As Purchased | Purchase Price | Ingredient Cost |
|---|---|---|---|---|---|
| 3 | 12 | Granulated sugar | 100-lb. bag | $19.80 | |
| – | ¾ | Salt | 100-lb. bag | $ 6.00 | |
| 1 | 8 | Non-fat dry milk | 50-lb. bag | $40.10 | |
| – | 6 | Corn starch | 10-lb. bag | $ 2.75 | |
| 3 | 12 | Whole eggs | 30-lb. can | $14.40 | |
| 12 | – | Water | Metered | Billed Mo. | – |
| – | 3 | Vanilla | 8-lb. jug | $ 4.75 | |
| – | 9 | Melted butter | 50-lb. cube | $42.50 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 22 | 2¾ | TOTAL WEIGHT | TOTAL COST OF FORMULA | | |

How much will it cost to fill one pie, using 14 ozs. as the weight of the filling? _____

## WHITE BREAD

*Fill in the cost of each ingredient*

| Lbs. | Oz. | Ingredients | As Purchased | Purchase Price | Ingredient Cost |
|---|---|---|---|---|---|
| 8 | – | Cold water | Metered | Billed Mo. | – |
| – | 4 | Salt | 100-lb. bag | $ 6.00 | |
| 1 | – | Granulated sugar | 100-lb. bag | $21.00 | |
| 1 | – | Non-fat dry milk powder | 50-lb. bag | $39.00 | |
| 1 | – | All-purpose shortening | 50-lb. cube | $30.50 | |
| 1 | – | Yeast | 25-lb. case | $ 6.25 | |
| 15 | – | Patent flour | 100-lb. bag | $15.45 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 27 | 4 | TOTAL WEIGHT | TOTAL COST OF FORMULA | | |

This formula makes 24 loaves.

At a markup of 35% how much will a loaf of bread sell for? _____

*Fill in the cost of each ingredient*

## HAMBURGER - FRANKFURTER ROLL DOUGH

| Lbs. | Oz. | Ingredients | As Purchased | Purchase Price | Ingredient Cost |
|---|---|---|---|---|---|
| – | 6 | Granulated sugar | 100-lb. bag | $19.20 | |
| – | 1 | Salt | 100-lb. bag | $ 6.00 | |
| – | 2 | Non-fat dry milk powder | 50-lb. bag | $35.90 | |
| – | 4 | Regular shortening | 50-lb. cube | $30.25 | |
| 2 | – | Cold water | Metered | Billed Mo. | – |
| – | 4 | Yeast | 25-lb. case | $ 7.25 | |
| 3 | 12 | Patent flour | 100-lb. bag | $14.75 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 6 | 13 | TOTAL WEIGHT | TOTAL COST OF FORMULA | | |

Figuring 66 rolls per recipe, how much margin will you make on each roll if you sell it for 10¢?

_____

How much margin will you make on each dozen rolls at that price?

## PIZZA DOUGH

*Fill in the cost of each ingredient*

| Lbs. | Oz. | Ingredients | As Purchased | Purchase Price | Ingredient Cost |
|---|---|---|---|---|---|
| 21 | – | High-gluten flour | 100-lb. bag | $16.65 | |
| 12 | – | Cold water | Metered | Billed Mo. | – |
| – | 3 | Yeast | 25-lb. case | $ 7.00 | |
| – | 6 | Salt | 100-lb. bag | $ 6.00 | |
| | | | | | |
| | | | | | |
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| | | | | | |
| | | | | | |
| | | | | | |
| 33 | 9 | TOTAL WEIGHT | TOTAL COST OF FORMULA | | |

If this formula makes 60 pizza-pie crusts, how much will one sell for at a 45% markup?

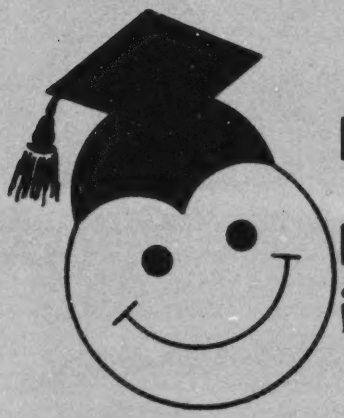
## WHAT WILL IT COST TO PRODUCE THIS FORMULA?

### JEWISH TWIST BREAD (CHOLLE)

| Lbs. | Oz. | Ingredients | As Purchased | Purchase Price | Ingredient Cost |
|---|---|---|---|---|---|
| 100 | – | High-gluten flour | 100-lb. bag | $18.95 | |
| 54 | – | Cold water | Metered | Billed Mo. | – |
| 1 | 12 | Salt | 100-lb. bag | $ 6.00 | |
| 4 | – | Granulated sugar | 100-lb. bag | $20.40 | |
| 1 | – | Malt | 50-lb. drum | $32.40 | |
| 1 | 12 | Yeast | 50-lb. case | $17.00 | |
| 5 | – | Vegetable oil | 440-lb. drum | $252.00 | |
| 6 | – | Whole eggs | 30-lb. can | $18.40 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 173 | 8 | TOTAL WEIGHT | TOTAL COST OF FORMULA | | |

Each bread is scaled at 1 pound.

How much will each bread sell for at a markup of 65% _____



# Be a smart cookie... put a little fun in your bake shop

*Fill in the cost of each ingredient*

## WHITE POUND CAKE

| Lbs. | Oz. | Ingredients | As Purchased | Purchase Price | Ingredient Cost |
|---|---|---|---|---|---|
| 5 | – | Cake flour | 100-lb. bag | $16.75 | |
| 3 | 4 | High-ratio shortening | 50-lb. cube | $33.00 | |
| 6 | 4 | Granulated sugar | 100-lb. bag | $21.30 | |
| – | 3 | Salt | 100-lb. bag | $ 6.00 | |
| – | 2½ | Baking powder | 10-lb. can | $ .75 | |
| 2 | – | Water | Metered | Billed Mo. | – |
| – | 8 | Non-fat dry milk powder | 50-lb. bag | $36.50 | |
| 3 | 4 | Egg whites | 30-lb. can | $14.40 | |
| 1 | – | Water | Metered | Billed Mo. | – |
| – | 1 | Vanilla flavor | 1-gal. jug | $ 2.85 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 21 | 10½ | TOTAL WEIGHT | TOTAL COST OF FORMULA | | |

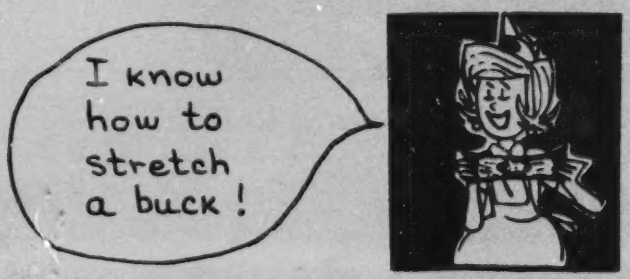
At a 60% markup, how much will an 18-ounce cake sell for? _____

# BUTTER CREAM

*Fill in the cost of each ingredient*

| Lbs. | Oz. | Ingredients | As Purchased | Purchase Price | Ingredient Cost |
|---|---|---|---|---|---|
| 5 | – | High-ratio shortening | 50-lb. cube | $34.00 | |
| – | 2 | Salt | 100-lb. bag | $ 6.00 | |
| 1 | 4 | Non-fat dry milk powder | 50-lb. bag | $39.50 | |
| 3 | 8 | Water | Metered | Billed Mo. | – |
| – | 1 | Vanilla | 1-gal. jug | $ 4.25 | |
| 20 | – | Confectionery sugar | 100-lb. bag | $19.80 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 29 | 15 | TOTAL WEIGHT | TOTAL COST OF FORMULA | | |

At a 40% markup how much will a pound of cookies sell for? _____

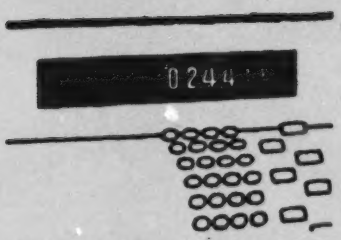


# HANDLING CASH

A day does not pass for any of us without using money. Because of this it is very important to learn the skill of handling money. When we buy, sell, or enter into any business transaction concerning money, we should be prepared to use this important skill.

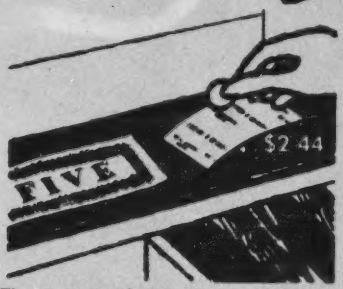
In the bakeshop you will be giving out change to customers. Many times you will have several people waiting for you. It is important that you can give change rapidly and accurately, so that at the end of the day your cash will balance.

# MAKING CHANGE

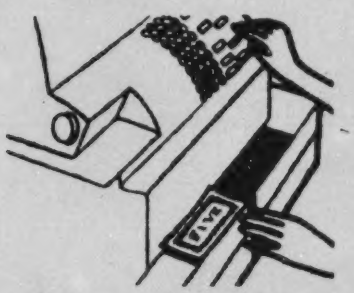


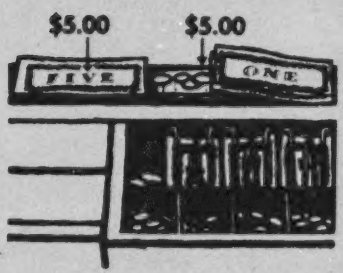

The cash register indication shows amount of sale

Place the customer's money on the change plate of the register

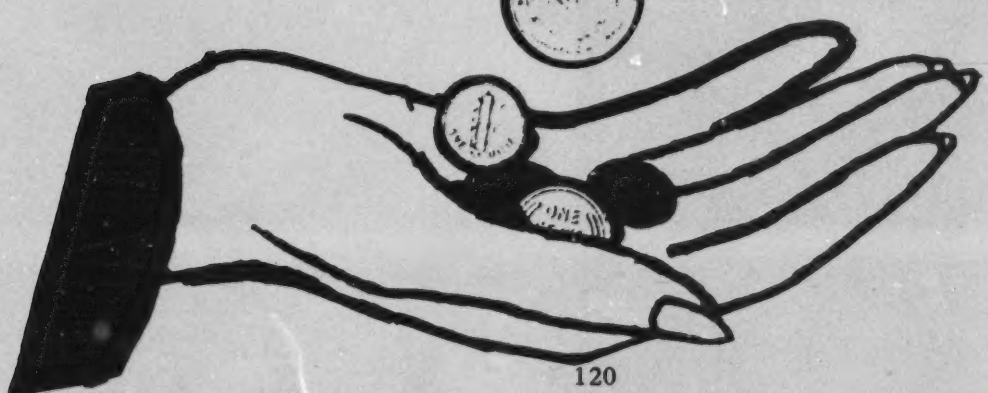



The amount of change is correct when the sum you have counted is equal to the amount the customer gave you.





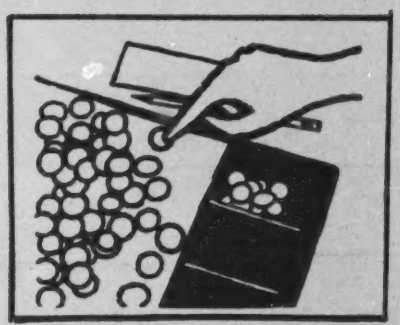
In counting money be sure to mention *each* dollar denomination. This will prevent skipping a dollar. For example, see how easy it would be to give a dollar too much change by counting it this way: "That was $2.44 out of $5 -- 44, 45, 50, 2, 3, 4, 5." The loss would be avoided if the change were counted correctly: "That was $2.44 out of $5 – TWO 44, TWO 45, TWO 50, THREE dollars, FOUR dollars, FIVE dollars."



# GETTING TO KNOW THE CASH REGISTER

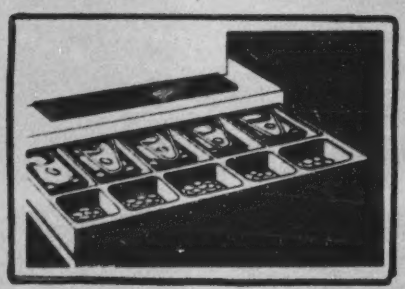
Cash Register

1. Use cardboard when counting change into cash drawer.



2. Count each denomination of coins separately and slide them into their proper compartments.

3. Usual arrangement of coins and currency in cash drawer.



## SAMPLE: FOR MAKING OUT DAILY CASH CHECK-IN SLIP

DATE

VALUE OF EACH

**DAILY CASH CHECK-IN SLIP FOR REGISTER**

| Date | No. | Cash | |
|---|---|---|---|
| All Bills | | | |
| Halves | | | |
| Quarters | | | |
| Dimes | | | |
| Nickels | | | |
| Pennies | | | |
| NAME | | | |
| TIME | | TOTAL CASH | |

NAME OF EACH DENOMINATION

YOUR NAME

TOTAL CASH

THE TIME YOU CHECKED THE CASH

THE COUNT OF EACH DENOMINATION

# SAMPLE: FOR MAKING OUT DAILY CASH CHECK-IN SLIP

Here is an example of a check-in cash slip made out by Zip Zipper for the Dee-Lish-Us Bakery.

Zip got up on the wrong side of the bed, barely made it to the store on time, and left several important figures out when he made up the slip. Help him out by completing the slip for him. Make sure that the cash column adds up correctly.

| DAILY CASH CHECK-IN SLIP FOR REGISTER | | | |
|---|---|---|---|
| Date | No. | Cash | |
| All Bills | 6 | 6 | 00 |
| Halves | 4 | | |
| Quarters | | 8 | 00 |
| Dimes | 21 | | |
| Nickels | 30 | | |
| Pennies | 40 | | 40 |
| NAME Zip Zipper | | | |
| TIME 8:55 A.M. | | TOTAL CASH 20 | 00 |

# SAMPLE: FOR MAKING OUT DAILY CASH CHECK-IN SLIP

It seems the De-Lish-Us Bakery has more than one careless employee.

When Mary Lamb counted up the cash at 6:00 P.M., she left plenty of wide open spaces, too. Fix up her slip for her and total it up.

| DAILY CASH CHECK-IN SLIP FOR REGISTER | | | |
|---|---|---|---|
| Date | No. | Cash | |
| All Bills | | 349 | 00 |
| Halves | 7 | 3 | 50 |
| Quarters | 65 | | |
| Dimes | 51 | | |
| Nickels | 16 | | |
| Pennies | | | 40 |
| NAME Mary Lamb | | | |
| TIME 6:00 P.M. | | TOTAL CASH | |

24

YOU are given $33.00 to start the day's business. Fill in all the spaces to complete the form below:

Use today's date, your name, and the time.

| DAILY CASH CHECK-IN SLIP FOR REGISTER | | | |
|---|---|---|---|
| Date | No. | Cash | |
| All Bills | | | |
| Halves | | | |
| Quarters | | | |
| Dimes | | | |
| Nickels | | | |
| Pennies | | | |
| NAME _____ | | | |
| TIME _____ | | TOTAL CASH | |

# SAMPLE: FOR MAKING OUT DAILY BALANCE SHEET

DATE

SHOP

**DAILY BALANCE SLIP**

DATE SHOP

| BALANCES | | | CASH REPORT | | |
|---|---|---|---|---|---|
| Register Reading | | | Total of Checks | | |
| Less Refunds | | | Total of Bills | | |
| Total Day's Business | | | Halves | | |
| Cash Over | | | Quarters | | |
| Cash Short | | | Dimes | | |
| Net Total | | | Nickels | | |
| | | | Pennies | | |
| Amount Turned In | | | Total | | |
| NAME | | | Less Starting Cash | | |
| TIME: | | | Net Total | | |

Amount shown on tape →

Monies Returned → Less Refunds

Amount after Refunds → Total Day's Business

Due to Errors → Cash Over / Cash Short

From other Column → Net Total

As checked by Office → Amount Turned In

Your Name → NAME

Time completed → TIME:

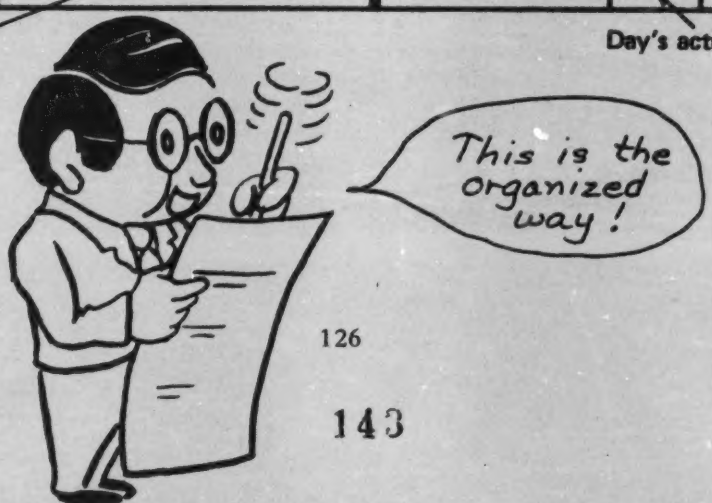
All Monies

In Cash Drawer

Total of all Monies in Drawer

Money you began with

Day's actual receipts



# COMPLETE THIS DAILY BALANCE SHEET

**DAILY BALANCE SLIP**

DATE 1/3/- SHOP Weed's Bakery

| BALANCES | | | CASH REPORT | | |
|---|---|---|---|---|---|
| Register Reading | 139 | 72 | Total of Checks | 23 | 25 |
| Less Refunds | | | Total of Bills | 93 | 00 |
| Total Day's Business | 128 | 51 | Halves | 3 | 50 |
| Cash Over | — | - | Quarters | 14 | 75 |
| Cash Short | — | — | Dimes | 8 | 10 |
| Net Total | | | Nickels | 5 | 45 |
| | | | Pennies | | 46 |
| Amount Turned In | | | Total | | |
| NAME Nick Nack | | | Less Starting Cash | 20 | 00 |
| TIME: 6:05 p.m. | | | Net Total | 128 | 51 |

In column one, fill in the *amount of refunds.*
In column one, fill in the *net total* and the *amount turned in.*
In column two, fill in the *total.*

# COMPLETE THIS DAILY BALANCE SHEET

**DAILY BALANCE SLIP**

DATE 1/7/- SHOP King's Bakery

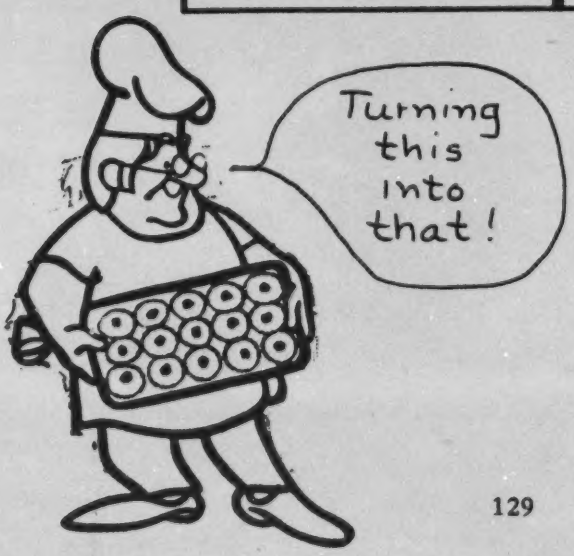
| BALANCES | | | CASH REPORT | | |
|---|---|---|---|---|---|
| Register Reading | 342 | 63 | Total of Checks | 105 | 62 |
| Less Refunds | 12 | 75 | Total of Bills | 193 | 00 |
| Total Day's Business | | | Halves | | 50 |
| Cash Over | — | — | Quarters | 12 | 25 |
| Cash Short | — | — | Dimes | 6 | 10 |
| Net Total | | | Nickels | 4 | 45 |
| | | | Pennies | | 71 |
| Amount Turned In | | | Total | 322 | 63 |
| NAME _____ | | | Less Starting Cash | 20 | 00 |
| TIME: _____ | | | Net Total | | |

In column one, fill in the total business for the day.
In column one, fill in the net total and the amount turned in.
In column two, fill in the net total.
Who is completing this form?
What time is it?

Your register reading is $376.92. You started with $20.00 of mixed change. Your refunds are $31.53.

Complete the entire slip, using today's date, name of shop, your name, and time.

| DAILY BALANCE SLIP | | | | | |
|---|---|---|---|---|---|
| DATE | | | SHOP | | |
| **BALANCES** | | | **CASH REPORT** | | |
| Register Reading | | | Total of Checks | | |
| Less Refunds | | | Total of Bills | | |
| Total Day's Business | | | Halves | | |
| Cash Over | | | Quarters | | |
| Cash Short | | | Dimes | | |
| Net Total | | | Nickels | | |
| | | | Pennies | | |
| Amount Turned In | | | Total | | |
| NAME_____ | | | Less Starting Cash | | |
| TIME:_____ | | | Net Total | | |



**SAMPLE**

**BAKESHOP ORDER SLIP**

No. 77777

DAY WANTED Friday DATE June 1, 19___

NAME Mrs. Baker ADDRESS

| No. | ITEM | @ | EXT. |
|---|---|---|---|
| 3 doz. | Dinner rolls | .60 | 1.80 |
| 2 lbs. | Rye bread | .45 | .90 |
| 5 lbs. | Butter cookies | 1.40 | 7.00 |
| 2 lbs. | Seven-layer cake | 1.35 | 2.70 |
| 1 | Coffee ring | .90 | .90 |
| 8 | Sugar cookies | .06 | .48 |
| | TOTAL THIS SALE | | $13.78 |

How many of an item are ordered

Price each dozen, piece, pound, etc.

The price of all of that item

Total of all items purchased

SAMPLE

BAKESHOP ORDER SLIP

No. 301

Fliegel's Bakeshop

DAY WANTED Monday DATE Sept. 9, 19___

NAME Mrs. Pretzel ADDRESS 615 Early St.

| No. | ITEM | @ | EXT. |
|---|---|---|---|
| 5 doz. | Hard rolls | 1.32 | |
| 2 | Twist breads | .65 | |
| 10 | Brownies | .22 | |
| 1 doz. | Donuts | 1.80 | |
| 1 | 10" Birthday cake | 4.25 | |
| 1½ lbs. | Butter cookies | 1.80 | |
| | TOTAL THIS SALE | | |

1. Price each item in the extension column.
2. Total the sale.

**SAMPLE**

**BAKESHOP ORDER SLIP**

How many of each item were ordered?

HONEY'S BAKESHOP

No. 92

DAY WANTED Wednesday DATE Oct. 13, 19___

NAME Mrs. Formula ADDRESS 29 Day St.

| No. | ITEM | @ | EXT. |
|---|---|---|---|
| | Dinner rolls | .08 | .48 |
| | Sugar cookies | .09 | .72 |
| | Crullers | .18 | 1.62 |
| | | | |
| | | | |
| | | | |
| | TOTAL THIS SALE | | |

1. Place correct quantities in No. column.
2. Total extension column.

SAMPLE

BAKESHOP ORDER SLIP

No. 33

SNUFFY'S BAKESHOP

DAY WANTED Friday DATE Nov. 7, 19___

NAME Town Restaurant ADDRESS 1042 Hirkimier St.

| No. | ITEM | @ | EXT. |
|---|---|---|---|
| 5 doz. | Hard rolls | | 6.00 |
| 7 doz. | Donuts | | 12.60 |
| 3 doz. | Sugar cookies | | 4.32 |
| 8 doz. | Brownies | | 21.12 |
| 11 lbs. | Butter cookies | | 19.25 |
| 6 doz. | Assorted buns | | 14.40 |
| | TOTAL THIS SALE | | |

How much does each item cost?

1. Place your figures in the spaces provided.
2. Add extension column.

A telephone order comes in as follows:

A – Twenty-two dozen hard rolls at eleven cents a dozen.

B – Sixteen loaves of rye bread at fifty-seven cents each.

C – Thirty-seven dozen hot dog rolls at seven cents each.

D – Forty-five apple turnovers at twenty-two cents each.

*COMPLETE THIS ORDER SHEET*

No. 174

SWEET-TOOTH BAKESHOP

DAY WANTED DATE

NAME ADDRESS

| No. | ITEM | @ | EXT. |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | TOTAL THIS SALE | | |

NOTE: You must fill in the *day wanted, the date, name,* and *address. Make them up – use your imagination.*

151

You open the bakeshop and find a note from one of your steady customers, which reads as follows:

38 loaves white bread @ .37

41 dozen hard rolls @ .96

15 layer cakes @ 1.35

5½ dozen french sticks at .21 each.

*COMPLETE THIS ORDER SHEET*

No. 005

HASSENPFEFFER'S BAKESHOP

DAY WANTED DATE

NAME ADDRESS

| No. | ITEM | @ | EXT. |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | TOTAL THIS SALE | | |

NOTE: You must fill in the *day wanted, the date, name,* and *address. Make them up – use your imagination.*

# INVOICES

*THIS PAGE IS FOR STUDY AS WELL AS A GUIDE TO LEARN HOW TO DO THE PROBLEMS ON THE PAGES TO FOLLOW:*

**SKY TOP BAKER'S SUPPLIES**

**2020 SPACE PLATFORM ROAD**
**OUTER SPACE, 00001**
**PHONE: 123 – 1900**

| ROUTE | SLSM. | CUSTOMER | DATE | INVOICE |
|---|---|---|---|---|
| 001 | 10 | 345 | 01/2/__ | 8091 |

**PK = PACK CODES**

| | | | |
|---|---|---|---|
| 1=BAG | 4=PAIL | 7=BOTTLE | 0=OTHER |
| 2=CASE | 5=CAN | 8=JAR | |
| 3=BOX | 6=DRUM | 9=CONTAINER | |

| TO: | TERMS |
|---|---|
| Middlesex County Vocational and Technical High School<br>Woodbridge, New Jersey, 07095 | 1% discount.<br>When Paid in 10 days |

| ITEM # | Quant. | Pk. | Unit Wt. | DESCRIPTION | PRICE | AMOUNT |
|---|---|---|---|---|---|---|
| 14209 | 1 | 1 | 100 | High-Gluten Flour | $15.65 | $15.65 |
| 13201 | 1 | 1 | 100 | Clear Flour | $14.50 | $14.50 |
| 21303 | 2 | 1 | 100 | Granulated Sugar | $20.00 | $40.00 |
| 173104 | 1 | 2 | 6/#10 | Apple-Pie Filling | $22.40 | $22.40 |

| TOTAL QUANTITY | 5 | | $92.55 |
|---|---|---|---|
| | | | TOTAL AMOUNT DUE |

| 1.28 | 01/12/ |
|---|---|
| You May Ded. | IF PAID BY |

CUSTOMER'S SIGNATURE

NOTE: *Sign only after you have thoroughly checked in all the merchandise on this invoice.*

**SKY TOP BAKER'S SUPPLIES**

**2020 SPACE PLATFORM ROAD**
**OUTER SPACE, 00001**
**PHONE: 123 – 1900**

| ROUTE | SLSM | CUSTOMER | DATE | INVOICE |
|---|---|---|---|---|
| 93 | 40 | 107 | 9/2/___ | 7510 |

**PK = PACK CODES**

| | | | |
|---|---|---|---|
| 1=BAG | 4=PAIL | 7=BOTTLE | 0=OTHER |
| 2=CASE | 5=CAN | 8=JAR | |
| 3=BOX | 6=DRUM | 9=CONTAINER | |

| TO: | TERMS |
|---|---|
| Flying-Saucer Bakeshop<br>Planet Mars, Outer Space | 1% deduction<br>when paid in 10 days |

| ITEM # | Quant. | Pk. | Unit Wt | DESCRIPTION | PRICE | AMOUNT |
|---|---|---|---|---|---|---|
| 11304 | 2 | 1 | 100 | Cake flour | 14.95 | |
| 14308 | 3 | 1 | 100 | High-gluten flour | 15.35 | |
| 21303 | 5 | 1 | 100 | Granulated sugar | 22.00 | |

| TOTAL QUANTITY | | | TOTAL AMOUNT DUE |
|---|---|---|---|
| You May Ded. | IF PAID BY | CUSTOMER'S SIGNATURE | |

**NOTE:** *Sign only after you have thoroughly checked in all the merchandise on this invoice.*

Complete this invoice. Be sure to include:

- Price of each item
- Total price
- Total quantity of packages
- The amount of the 1% discount
- The date for the 1% discount

After checking, sign your name.
Have you forgotten anything?

**SKY TOP BAKER'S SUPPLIES**

**2020 SPACE PLATFORM ROAD**
**OUTER SPACE, 00001**
**PHONE: 123 – 1900**

| ROUTE | SLSM. | CUSTOMER | DATE | INVOICE |
|---|---|---|---|---|
| 93 | 40 | 108 | 10/11/___ | 7591 |

**P[illegible] PACK CODES**

1=BAG [illegible] 7=BOTTLE 0=OTHER
2=CASE 5=CAN 8=JAR
3=BOX 6=DRUM 9=CONTAINER

| TO: | TERMS |
|---|---|
| Bright Star Bakery<br>Icing Lane, Fudge City | 1% discount<br>when paid in 10 days |

| ITEM # | Quant. | Pk. | Unit Wt | DESCRIPTION | PRICE | AMOUNT |
|---|---|---|---|---|---|---|
| 173104 | 2 | 2 | 6/#10 | Apple pie filling | 22.50 | |
| 269258 | 1 | 6 | 50 | Baking powder | 14.65 | |
| 122259 | 3 | 2 | 10 lb. | Red glazed cherries | 6.70 | |
| 52407 | 5 | 2 | 50 | High-ratio shortening | 30.50 | |
| TOTAL QUANTITY | | | | | | TOTAL AMOUNT DUE |

You May Ded. | IF PAID BY

CUSTOMER'S SIGNATURE

**NOTE:** *Sign only after you have thoroughly checked in all the merchandise on this invoice.*

Complete the above invoice, including:

The cost of each item
The total amount due
The total quantity of items
The 1% discount and date for it.

What is the last thing you should do?

**SKY TOP BAKER'S SUPPLIES**

**2020 SPACE PLATFORM ROAD**
**OUTER SPACE, 00001**
**PHONE: 123 – 1900**

| ROUTE | SLSM | CUSTOMER | DATE | INVOICE |
|---|---|---|---|---|
| 93 | 40 | 109 | 11/29/___ | 9542 |

**PK = PACK CODES**

| | | | |
|---|---|---|---|
| 1=BAG | 4=PAIL | 7=BOTTLE | 0=OTHER |
| 2=CASE | 5=CAN | 8=JAR | |
| 3=BOX | 6=DRUM | 9=CONTAINER | |

| TO: | TERMS |
|---|---|
| Moon-Rock Bakeshop<br>Stone Quarry Road, Moon City | 1% deduction<br>when paid in 10 days |

| ITEM # | Quant. | Pk | Unit Wt | DESCRIPTION | PRICE | AMOUNT |
|---|---|---|---|---|---|---|
| 52405 | 8 | 2 | 50 | All-purpose shortening | | 236.00 |
| 15559 | 10 | 1 | 100 | Patent flour | | 134.50 |
| 201377 | 3 | 7 | gal. | Vanilla flavor | | 12.75 |
| 22103 | 5 | 1 | 100 | 6X Confectionery sugar | | 107.00 |

| TOTAL QUANTITY | | | TOTAL AMOUNT DUE |
|---|---|---|---|
| You May Ded. | IF PAID BY | CUSTOMER'S SIGNATURE | |

**NOTE:** *Sign only after you have thoroughly checked in all the merchandise on this invoice.*

Complete the above form. Be sure to include:

Total quantity of items
Price per unit for all products
Total amount due
Amount and date for 1% discount

When you have checked everything, sign your name.

**SKY TOP BAKER'S SUPPLIES**

**2020 SPACE PLATFORM ROAD**
**OUTER SPACE, 00001**
**PHONE: 123 – 1900**

| ROUTE | SLSM | CUSTOMER | DATE | INVOICE |
|---|---|---|---|---|
| 93 | 40 | 8110 | 12/26/___ | 11172 |

**PK = PACK CODES**

| | | | |
|---|---|---|---|
| 1=BAG | 4=PAIL | 7=BOTTLE | 0=OTHER |
| 2=CASE | 5=CAN | 8=JAR | |
| 3=BOX | 6=DRUM | 9=CONTAINER | |

| TO: | TERMS |
|---|---|
| Sandy Hill Bakery<br>Mud Street, Gooytown | 1% deduction<br>when paid in 10 days |

| ITEM # | Quant. | Pk | Unit Wt | DESCRIPTION | PRICE | AMOUNT |
|---|---|---|---|---|---|---|
| 21303 | | 1 | 100 | Granulated sugar | 19.75 | 158.00 |
| 11304 | | 1 | 100 | Cake flour | 15.25 | 76.25 |
| 14308 | | 1 | 100 | High-gluten flour | 15.75 | 110.25 |
| 15559 | | 1 | 100 | Patent flour | 14.80 | 148.00 |
| TOTAL QUANTITY | | | | | | TOTAL AMOUNT DUE |

| You May Ded. | IF PAID BY |
|---|---|
| | |

CUSTOMER'S SIGNATURE

**NOTE:** *Sign only after you have thoroughly checked in all the merchandise on this invoice.*

Fill in the missing items in the above invoice. Include:

Quantity of each product
Total quantity
Total amount due
Amount of 1% discount and date for it.

What is the last thing you should do?

141

# THE CHANCE YOU HAVE BEEN WAITING FOR

The information below will give you the opportunity to fill in the complete invoice.

1 – You are route 93, you are salesman 40, your customer is #8111. Use today's date and invoice #1172.

2 – To whom you are shipping? (Make up your own name and address)

3 – Make up your own item numbers for the following ordered ingredients. Write the items in carefully and work out the price for each.

a) 7 bags of granulated sugar @ $22.10 per bag.
b) 3 50-lb. cubes of all-purpose shortening @ $32.10 per cube.
c) 5 lbs. patent flour @ $14.60 per bag.
d) 6 bags of cake flour @ $16.05 per bag.
e) 8 bags of 6X confectionery sugar @ $35.75 per bag.
f) 5 gallons of vanilla @ $4.95 per gallon.

4 – Total all columns that should be totaled.

5 – Figure the 1% discount and give the last date for the discount.

6 – To make this form official, what is the last thing that should be done? Do it!

YOU'RE ON YOUR OWN

**SKY TOP BAKER'S SUPPLIES**

**2020 SPACE PLATFORM ROAD**
**OUTER SPACE, 00001**
**PHONE: 123 – 1900**

| ROUTE | SLSM | CUSTOMER | DATE | INVOICE |
|---|---|---|---|---|
| | | | | |

**PK = PACK CODES**

| | | | |
|---|---|---|---|
| 1=BAG | 4=PAIL | 7=BOTTLE | 0=OTHER |
| 2=CASE | 5=CAN | 8=JAR | |
| 3=BOX | 6=DRUM | 9=CONTAINER | |

| TO: | TERMS |
|---|---|
| | |

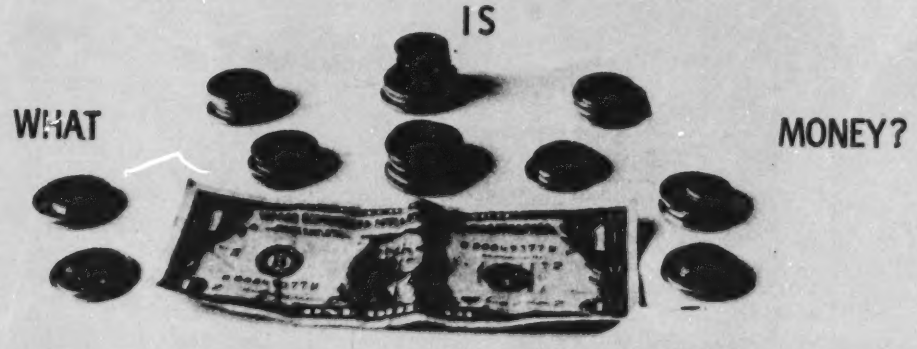
| ITEM # | Quant. | Pk | Unit Wt | DESCRIPTION | PRICE | AMOUNT |
|---|---|---|---|---|---|---|
| | | | | | | |

| TOTAL QUANTITY | | | TOTAL AMOUNT DUE |
|---|---|---|---|
| You May Ded. | IF PAID BY | CUSTOMER'S SIGNATURE | |

NOTE: *Sign only after you have thoroughly checked in all the merchandise on this invoice.*

# PREPARING FOR EMPLOYMENT

1. Persons preparing for employment should be aware of employment trends.
2. There is always a demand for skilled workers.




1. Money is a tool.
2. Money is anything generally accepted in payment for *goods, services,* or *debts.* It is a *medium of exchange.*
3. Money is also a standard of value: it tells how much a thing is *worth.*

The form below is probably the most important form you will ever fill out. It is your social security application.

ID CN DO

**APPLICATION FOR A SOCIAL SECURITY NUMBER**

DO NOT WRITE IN THE ABOVE SPACE

See instructions on Back. Print in Black or Dark Blue Ink or Use Typewriter.

1 Enter FULL NAME YOU WILL USE IN WORK OR BUSINESS (First Name) (Middle Name or Initial – if none, draw line) (Last Name)

2 Enter FULL NAME GIVEN YOU AT BIRTH

3 PLACE OF BIRTH (City) (County if known) (State)

4 MOTHER'S FULL NAME AT HER BIRTH (Her maiden name)

5 FATHER'S FULL NAME (Regardless of whether living or dead)

6 YOUR DATE OF BIRTH (Month) (Day) (Year)

7 YOUR PRESENT AGE (Age on last birthday)

8 YOUR SEX MALE FEMALE

9 YOUR COLOR OR RACE WHITE NEGRO OTHER

10 HAVE YOU EVER BEFORE APPLIED FOR OR HAD A UNITED STATES SOCIAL SECURITY, RAILROAD, OR TAX ACCOUNT NUMBER? NO DON'T KNOW YES (If "YES" Print STATE in which you applied and DATE you applied and SOCIAL SECURITY NUMBER if known)

11 YOUR MAILING ADDRESS (Number and Street, Apt. No., P.O. Box, or Rural Route) (City) (State) (Zip Code)

12 TODAY'S DATE

13 TELEPHONE NUMBER

14 NOTICE: Whoever, with intent to falsify his or someone else's true identity, willfully furnishes or causes to be furnished false information in applying for a social security number, is subject to a fine of not more than $1,000 or imprisonment for up to 1 year, or both.

Sign YOUR NAME HERE (Do Not Print)

FORM SS-5 (9-74) RESCREEN ASSIGN DUP ISSUED Return completed application to nearest SOCIAL SECURITY ADMINISTRATION OFFICE

Every person in the United States who works must have a SOCIAL SECURITY number. This is a permanent number – you keep it throughout your entire life.

Without this I would have been a goner!
SOCIAL SECURITY
ACCOUNT NUMBER
000-00-0000
HAS BEEN ESTABLISHED FOR
Joseph G. Baker
SIGNATURE Joseph G. Baker
FOR SOCIAL SECURITY PURPOSES • NOT FOR IDENTIFICATION

All moneys paid for social security by you and your employers are recorded under your name and number.

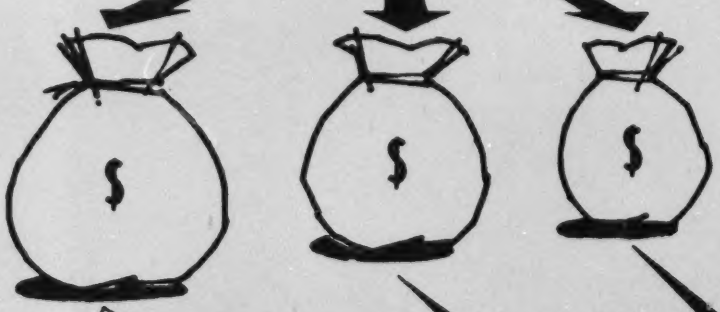
# SOCIAL SECURITY

WHERE THE MONEY COMES FROM;
WHERE THE MONEY GOES.

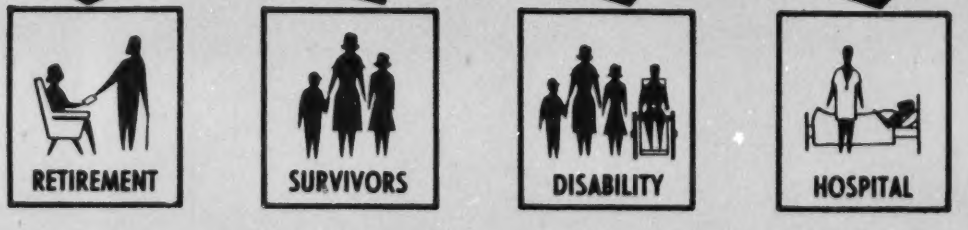
## RETIREMENT, SURVIVORS, DISABILITY, AND HOSPITAL INSURANCE

TAXES PAID DURING WORKING YEARS BY
- EMPLOYERS
- EMPLOYEES
- SELF-EMPLOYED PEOPLE

3 SEPARATE TRUST FUNDS



TRUST FUND MONEY USED FOR BENEFITS




Administrative costs for each program come out of the corresponding trust fund.

## VOLUNTARY MEDICAL INSURANCE

PREMIUMS BY PEOPLE 65 OR OVER WHO SIGN UP—
EQUAL CONTRIBUTION
BY GOVERNMENT

A SEPARATE TRUST FUND

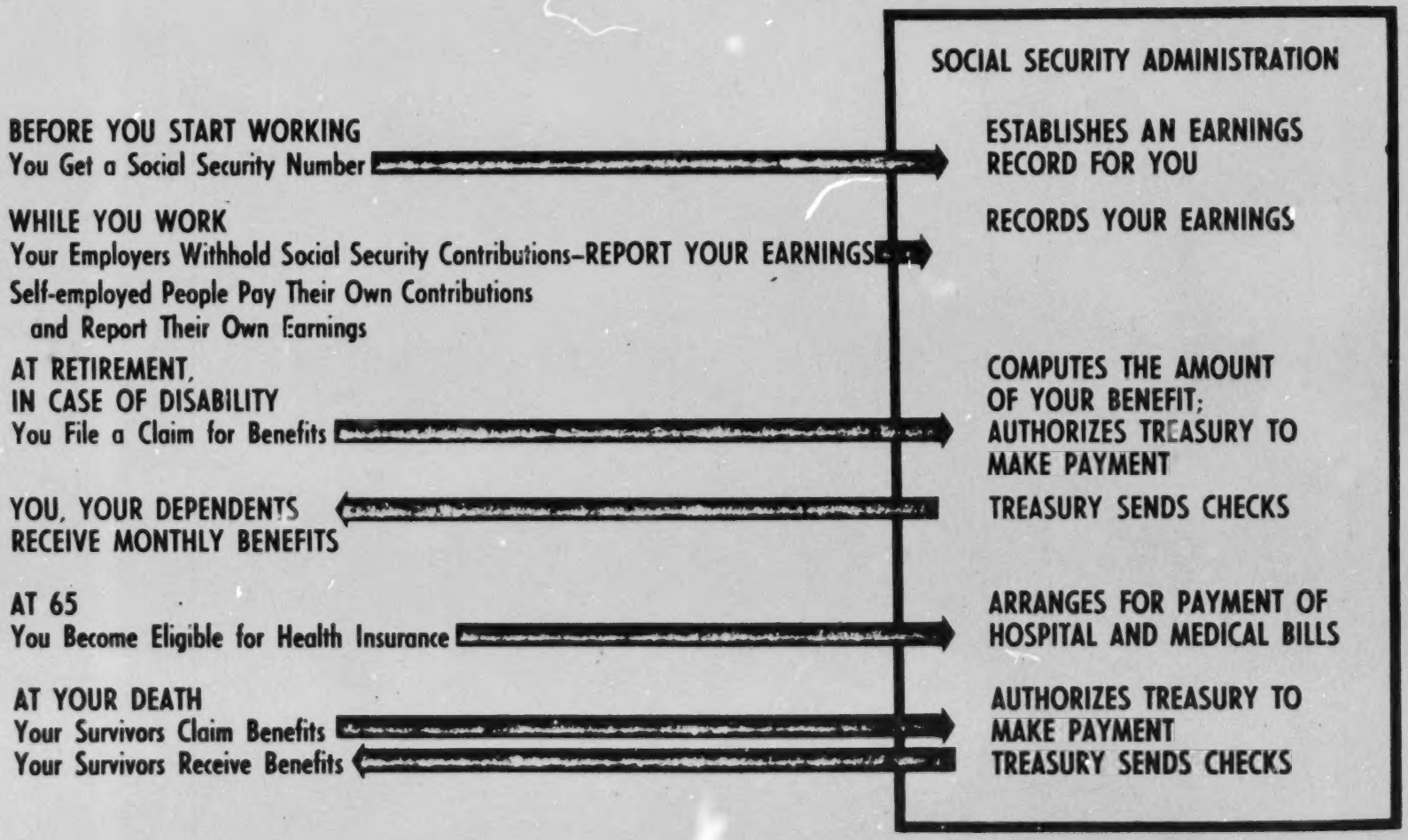
U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
SOCIAL SECURITY ADMINISTRATION

1965 OASI-61

163

146

# FROM SOCIAL SECURITY NUMBER TO SOCIAL SECURITY BENEFITS


SOCIAL SECURITY ADMINISTRATION
BEFORE YOU START WORKING
You Get a Social Security Number
ESTABLISHES AN EARNINGS RECORD FOR YOU
WHILE YOU WORK
Your Employers Withhold Social Security Contributions–REPORT YOUR EARNINGS
Self-employed People Pay Their Own Contributions and Report Their Own Earnings
RECORDS YOUR EARNINGS
AT RETIREMENT, IN CASE OF DISABILITY
You File a Claim for Benefits
COMPUTES THE AMOUNT OF YOUR BENEFIT; AUTHORIZES TREASURY TO MAKE PAYMENT
YOU, YOUR DEPENDENTS RECEIVE MONTHLY BENEFITS
TREASURY SENDS CHECKS
AT 65
You Become Eligible for Health Insurance
ARRANGES FOR PAYMENT OF HOSPITAL AND MEDICAL BILLS
AT YOUR DEATH
Your Survivors Claim Benefits
Your Survivors Receive Benefits
AUTHORIZES TREASURY TO MAKE PAYMENT
TREASURY SENDS CHECKS

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Social Security Administration

It's a good idea to check your own social security record from time to time to make sure that your earnings have been reported correctly. This is especially true if you change jobs frequently. Below is a copy of a post-card form (available at any social security office) to request a copy of your record. Be sure to sign the card, because information about your earnings cannot be released without a signed request from you.

**REQUEST FOR STATEMENT OF EARNINGS**

SOCIAL SECURITY NUMBER →

DATE OF BIRTH →

| MONTH | DAY | YEAR |
|---|---|---|
| | | |

Please send a statement of the amount of earnings recorded in my social security account to:

NAME { MISS / MRS / MR } _____

STREET & NUMBER _____

CITY & STATE _____ ZIP CODE _____

*Print Name and Address In Ink Or Use Typewriter*

SIGN YOUR NAME AS YOU USUALLY WRITE IT _____

Sign your own name only. Under the law, information in your social security record is confidential and anyone who signs someone else's name can be prosecuted.

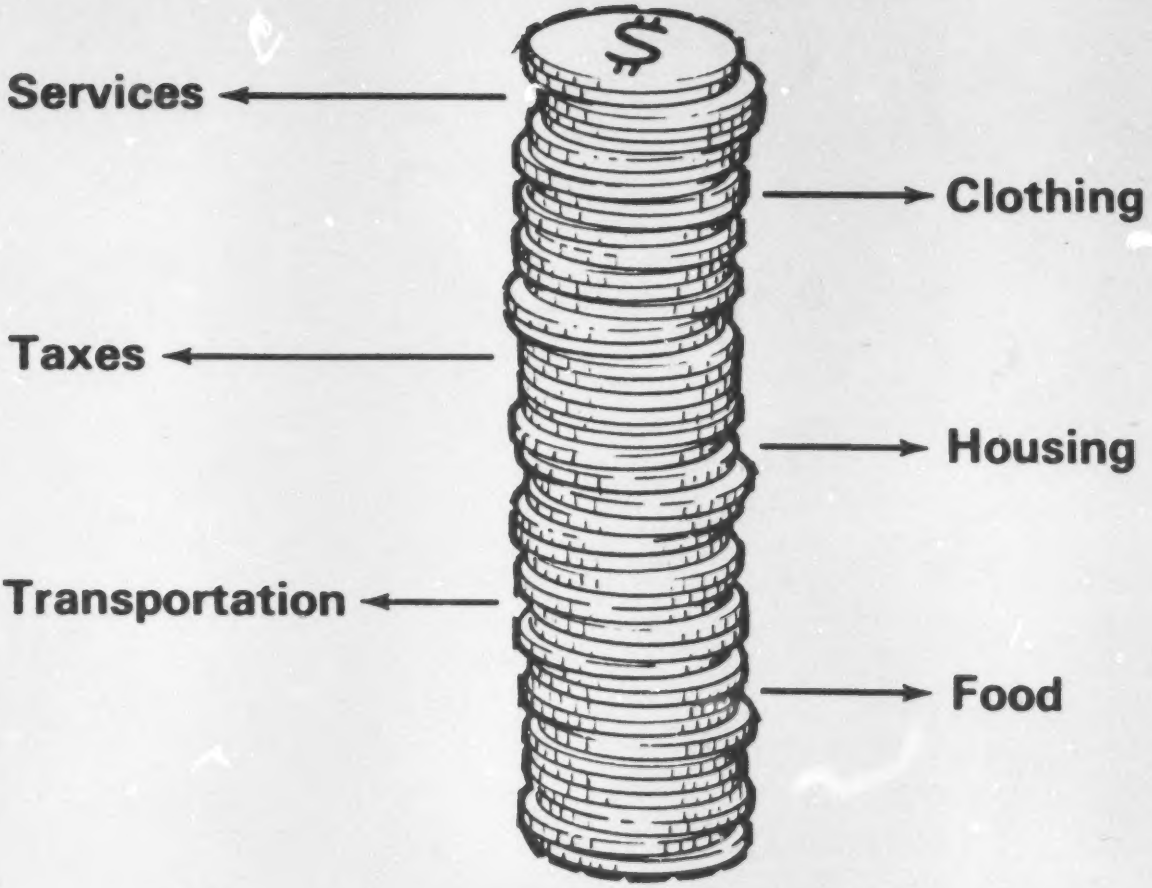
If your name has been changed from that shown on your social security account number card, please copy your name below exactly as it appears on that card.

If your own records of your earnings do not agree with the amounts shown on the statement you receive, your district office will help you get the account straightened out.

# WHAT IS WAGE?

**To the Employer -- Cost of Production**

**To You -- Income or Purchasing Power that determines your standard of living**




These are the most important things you spend your money on.

# EMPLOYEE'S SALARY AND TAX RECORD

NAME _____ ADDRESS _____

DATE BEGAN EMPLOYMENT _____ DATE ENDED EMPLOYMENT _____ REASON FOR TERMINATION EMPLOYMENT _____

REMARKS _____ SOC. SEC. NUMBER _____

YEAR 19_____

| DATE PAID | SALARY | DEDUCTIONS | | | | | | NET WAGES | DATE PAID | SALARY | DEDUCTIONS | | | | | NET WAGES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | F.I.C.A. TAX | WITHHOLDING TAX | OTHER DEDUCTIONS | | TOTAL DEDUCTIONS | | | | | FICA | WITHHOLDING TAX | OTHER DEDUCTIONS | | TOTAL DEDUCTIONS | |
| | | | | | | | | | | | | | | | | |
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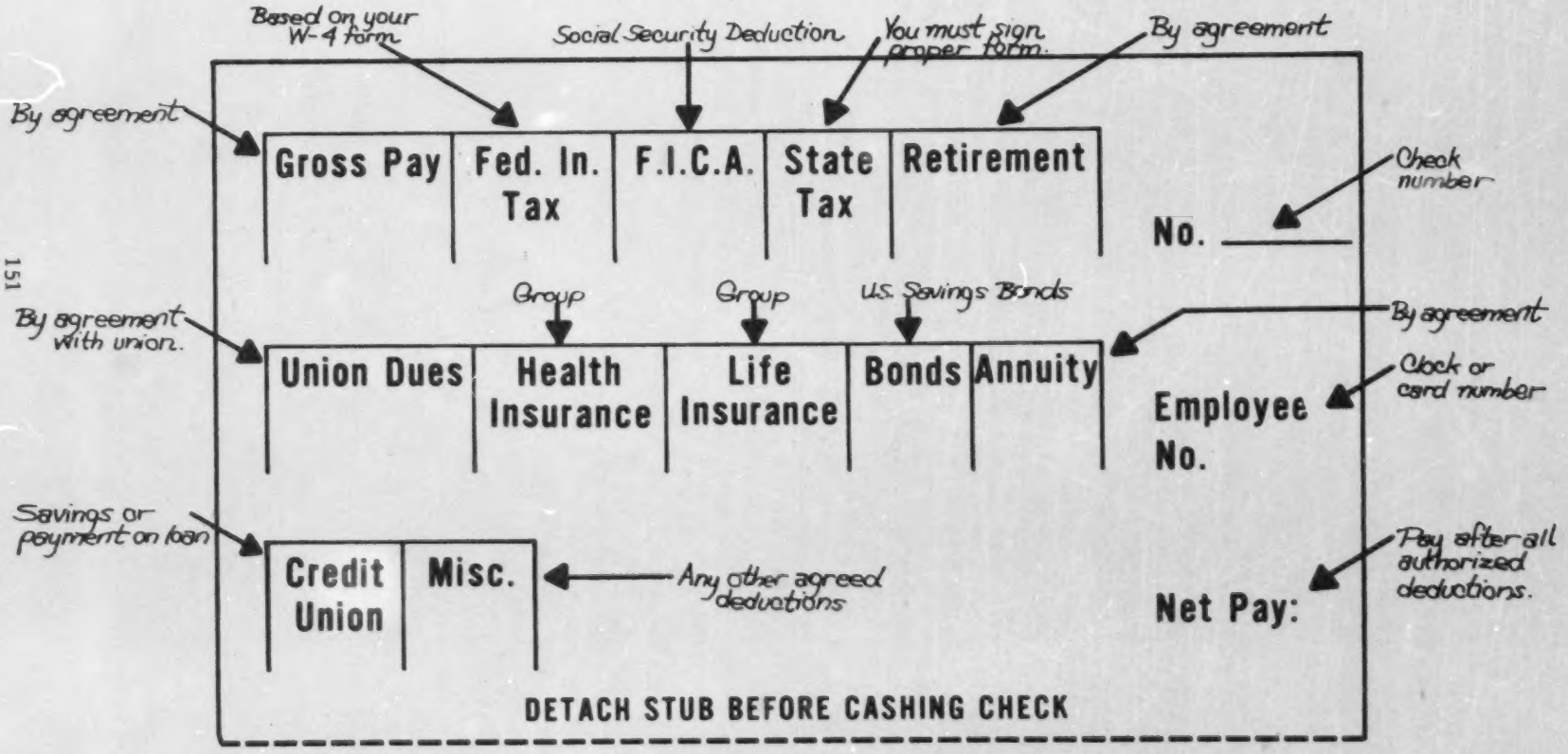
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| TOTAL FOR QUARTER | | | | | | | | | TOTAL FOR QUARTER | | | | | | | |

This is an example of the type of record an employer might use to keep track of his employees' pay and deductions, for use in reporting them to the government.

150
167

# YOU AS THE EMPLOYEE MUST AUTHORIZE MOST OF THESE DEDUCTIONS.




# ALWAYS CHECK YOUR STUB.

# PAYROLL CHECK

PLACE THE FOLLOWING FIGURES IN THE PROPER COLUMNS.

| Hours | Regular Pay | Overtime Pay | Gross Pay |
|---|---|---|---|
| 46 | $110.00 | $24.75 | $134.75 |

SOLAR BAKERIES inc. Nº 001

| HOURS | AMOUNT EARNED | | | GROSS | AMOUNT OF DEDUCTIONS | | | | NET | PERIOD |
|---|---|---|---|---|---|---|---|---|---|---|
| | Regular | Overtime | Bonus, Vacation | PAY | Fed. Income Tax | FICA | State U.I. | Other | PAY | ENDING |
| | | | | | | | | | | |

*Detach and keep for your records*

PAY ROLL CHECK

SOLAR BAKERIES inc.

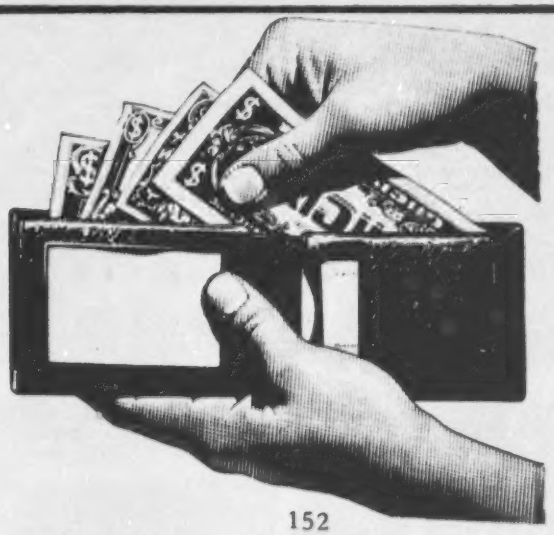
Nº _____

DATE _____ 197_

PAY TO THE ORDER OF _____ $ _____

BRIGHT STAR BANK
LUNAR CITY, OUTER SPACE
088:00965! 7006! 1230!

_____
TREASURER



# PAYROLL CHECK

RONNIE BAKER worked 56 hours last week. His regular week is 40 hours at $3.25 per hour. How much is his regular pay? his overtime pay at time and a half? How much is his gross pay?

Ronnie had the following deductions taken from his pay:

| | |
|---|---|
| Federal Income Tax | $35.00 |
| F.I.C.A. (Social Security) | 12.17 |

How much was his net pay? The pay period ended last Friday.

Fill in the check stub, using the proper figures. Then fill in the check completely, using the proper amount and this Friday's date. It is a check number 002. Sign it yourself as treasurer.

SOLAR BAKERIES inc. No

| HOURS | AMOUNT EARNED | | | GROSS | AMOUNT OF DEDUCTIONS | | | | NET | PERIOD |
|---|---|---|---|---|---|---|---|---|---|---|
| | Regular | Overtime | Bonus, Vacation | PAY | Fed. Income Tax | FICA | State U.I. | Other | PAY | ENDING |
| | | | | | | | | | | |

*Detach and keep for your records*

PAY ROLL CHECK

SOLAR BAKERIES inc.

No _____

DATE _____ 197_

PAY TO THE ORDER OF _____ $ _____

_____

BRIGHT STAR BANK
LUNAR CITY, OUTER SPACE
088:00965! 7006! 1230!

_____
TREASURER

# PAYROLL CHECK

JANE SWEETHEART worked 20 hours last week at $2.40 per hour. What is her total regular pay? She is single and claims one exemption. Using the tax chart on page 157, how much is her withholding tax? At 5.85% how much is her social security payment? (F.I.C.A.) What is her gross pay? What is her net pay?

Fill in all the answers in the check stub below. Fill in the check completely. It is number 003. You are the treasurer. Use this Friday's date.

SOLAR BAKERIES inc. Nº

| HOURS | AMOUNT EARNED | | | GROSS | AMOUNT OF DEDUCTIONS | | | | NET | PERIOD |
|---|---|---|---|---|---|---|---|---|---|---|
| | Regular | Overtime | Bonus, Vacation | PAY | Fed. Income Tax | FICA | State U.I. | Other | PAY | ENDING |
| | | | | | | | | | | |

*Detach and keep for your records*

PAY ROLL CHECK — SOLAR BAKERIES inc. — Nº ____

DATE _____ 197_

PAY TO THE ORDER OF _____ $ _____

_____

BRIGHT STAR BANK
LUNAR CITY, OUTER SPACE
088:00965! 7006! 1230!

_____
TREASURER

# PAYROLL CHECK

BOBO DINGALING has just finished working his 40-hour week at $4.75 per hour. He is about to begin his 2-week vacation. How much is his regular week's pay?

How much is his vacation pay?
How much is his gross pay?
Using the chart, how much is his withholding tax?
At 5.85% how much is his social security payment? (F.I.C.A.)
How much is his state unemployment insurance at 1%?
How much is his net pay?

**Place all your answers in the proper columns of the check stub.**

SOLAR BAKERIES inc. No

| HOURS | AMOUNT EARNED | | | GROSS | AMOUNT OF DEDUCTIONS | | | | NET | PERIOD |
|---|---|---|---|---|---|---|---|---|---|---|
| | Regular | Overtime | Bonus, Vacation | PAY | Fed. Income Tax | FICA | State U.I. | Other | PAY | ENDING |
| | | | | | | | | | | |

*Detach and keep for your records*

PAY ROLL CHECK

SOLAR BAKERIES inc.

No ____

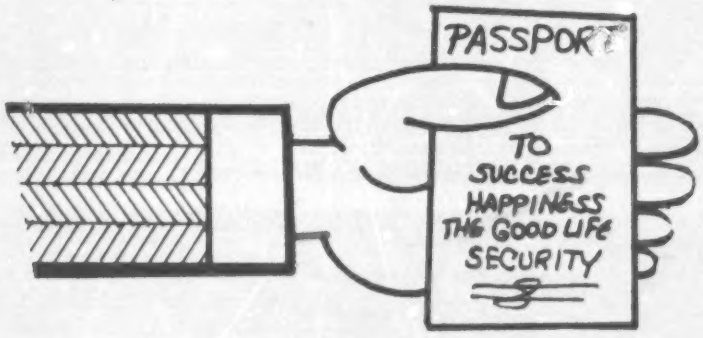
DATE _____ 197_

PAY TO THE ORDER OF _____ $ _____

BRIGHT STAR BANK
LUNAR CITY, OUTER SPACE
088:00965! 7006! 1230!

_____
TREASURER

Fill in check number 004, using today's date and the proper amount of pay. You are the Treasurer.



# PAYROLL CHECK

DOLORES ORTIZ worked 57 hours last week. Her hourly wage is $4.35.
Use the chart for withholding tax.
Social Security tax is 5.85%.
State unemployment insurance tax is 1%.

You are the treasurer. Make out the stub and check.
Use this Friday's date.

SOLAR BAKERIES inc. No

| HOURS | AMOUNT EARNED | | | GROSS | AMOUNT OF DEDUCTIONS | | | | NET | PERIOD |
|---|---|---|---|---|---|---|---|---|---|---|
| | Regular | Overtime | Bonus, Vacation | PAY | Fed. Income Tax | FICA | State U.I. | Other | PAY | ENDING |
| | | | | | | | | | | |

*Detach and keep for your records*

PAY ROLL CHECK

SOLAR BAKERIES inc.

No _____

DATE _____ 197_

PAY TO THE ORDER OF _____ $ _____

BRIGHT STAR BANK
LUNAR CITY, OUTER SPACE
088:00965! 7006! 1230!

_____
TREASURER

## SINGLE Persons — WEEKLY Payroll Period

| And the wages are— | | Number of withholding exemptions claimed is— | |
|---|---|---|---|
| At least | But less than | 0 | 1 |
| | | The amount of income tax to be withheld shall be— | |
| $0 | $11 | | $0 |
| 11 | 12 | | 0 |
| 12 | 13 | | 0 |
| 13 | 14 | | 0 |
| 14 | 15 | | 0 |
| 15 | 16 | | 0 |
| 16 | 17 | | 0 |
| 17 | 18 | | 0 |
| 18 | 19 | | 0 |
| 19 | 20 | | 0 |
| 20 | 21 | | 0 |
| 21 | 22 | | 0 |
| 22 | 23 | | 0 |
| 23 | 24 | | 0 |
| 24 | 25 | | 0 |
| 25 | 26 | | .10 |
| 26 | 27 | | .20 |
| 27 | 28 | | .40 |
| 28 | 29 | | .50 |
| 29 | 30 | | .60 |
| 30 | 31 | | .80 |
| 31 | 32 | | .90 |
| 32 | 33 | | 1.10 |
| 33 | 34 | | 1.20 |
| 34 | 35 | | 1.30 |
| 35 | 36 | | 1.50 |
| 36 | 37 | | 1.60 |
| 37 | 38 | | 1.80 |
| 38 | 39 | | 1.90 |
| 39 | 40 | | 2.00 |
| 40 | 41 | | 2.20 |
| 41 | 42 | | 2.30 |
| 42 | 43 | | 2.50 |
| 43 | 44 | | 2.60 |
| 44 | 45 | | 2.70 |
| 45 | 46 | | 2.90 |
| 46 | 47 | | 3.00 |
| 47 | 48 | | 3.20 |
| 48 | 49 | | 3.30 |
| 49 | 50 | | 3.40 |
| 50 | 51 | | 3.60 |
| 51 | 52 | | 3.80 |
| 52 | 53 | | 4.00 |
| 53 | 54 | | 4.20 |
| 54 | 55 | | 4.30 |
| 55 | 56 | | 4.50 |
| 56 | 57 | | 4.70 |
| 57 | 58 | | 4.90 |
| 58 | 59 | | 5.10 |
| 59 | 60 | | 5.20 |
| 60 | 62 | | 5.50 |
| 62 | 64 | | 5.90 |
| 64 | 66 | | 6.20 |
| 66 | 68 | | 6.60 |
| 68 | 70 | | 7.00 |
| 70 | 72 | | 7.30 |
| 72 | 74 | | 7.70 |
| 74 | 76 | | 8.00 |
| 76 | 78 | | 8.40 |
| 78 | 80 | | 8.80 |

| And the wages are— | | | |
|---|---|---|---|
| At least | But less than | 0 | 1 |
| | | | |
| $80 | $82 | | $9.10 |
| 82 | 84 | | 9.50 |
| 84 | 86 | | 9.80 |
| 86 | 88 | | 10.20 |
| 88 | 90 | | 10.60 |
| 90 | 92 | | 11.00 |
| 92 | 94 | | 11.40 |
| 94 | 96 | | 11.90 |
| 96 | 98 | | 12.30 |
| 98 | 100 | | 12.70 |
| 100 | 105 | | 13.40 |
| 105 | 110 | | 14.50 |
| 110 | 115 | | 15.50 |
| 115 | 120 | | 16.60 |
| 120 | 125 | | 17.60 |
| 125 | 130 | | 18.70 |
| 130 | 135 | | 19.70 |
| 135 | 140 | | 20.80 |
| 140 | 145 | | 21.80 |
| 145 | 150 | | 22.90 |
| 150 | 160 | | 24.50 |
| 160 | 170 | | 26.60 |
| 170 | 180 | | 28.70 |
| 180 | 190 | | 30.80 |
| 190 | 200 | | 32.90 |
| 200 | 210 | | 35.00 |
| 210 | 220 | | 37.10 |
| 220 | 230 | | 39.30 |
| 230 | 240 | | 41.60 |
| 240 | 250 | | 43.90 |
| 250 | 260 | | 46.60 |
| 260 | 270 | | 49.30 |
| 270 | 280 | | 52.00 |
| 280 | 290 | | 54.80 |
| 290 | 300 | | 57.90 |

# TAX TERMS TO BECOME FAMILIAR WITH

GROSS INCOME includes money received as wages, salaries, commissions, bonuses, tips, prizes, self-employment income, interest, dividends, rents, and profits from a business.

INTEREST is money paid for the use of (someone else's) money. Banks, savings and loan companies, credit unions, and other organizations pay interest on money that people put into their accounts. Bonds also pay interest to their buyers.

DIVIDENDS are payments out of a company's profits. Dividends are paid to investors in stocks, mutual funds, and other organizations.

ADJUSTED GROSS INCOME is gross income minus a few special allowances, such as "sick pay," tax-exempt contribution to a pension plan, employee business expense, etc.

SICK PAY is pay you receive when you are out sick. Part of your sick pay can be subtracted when you figure your income tax.

DEDUCTIONS – amounts that may be subtracted from the adjusted gross income before figuring the tax due. A person may take a *standard* deduction (15% of income as of 1975) or may *itemize* (list) various deductions. These include contributions to charities, most taxes, interest payments, some medical expenses, union dues, etc., etc. The taxpayer uses whichever method costs him less tax.

DEPENDENTS – a family member or close relative who is supported mainly by the taxpayer. The taxpayer is allowed to subtract an EXEMPTION amount for each dependent.

TAXABLE INCOME is that portion of income which is left after all deductions and exemptions have been subtracted. In 1975 the exemption amount was $750 for each taxpayer and each of his or her dependents.

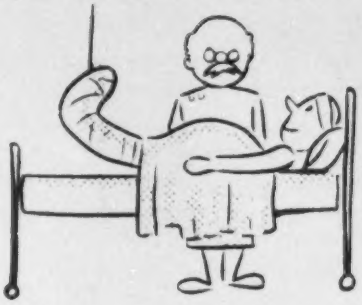
TAX LIABILITY – the amount of income tax a person actually owes the government. If it turns out to be *more* than the amount that was withheld from wages, the person must pay the balance. If the tax liability turns out to be less than the amount that was withheld, the government will refund the balance.

On page 160 is a form which every worker must fill out when he gets a job. It tells the employer *how many exemptions* the worker will claim when he makes out his income-tax return. When the employer knows the correct number of exemptions for the worker, then he knows how much income tax to *withhold* from the worker's pay.

# WHAT IS DEDUCTIBLE?

CONTRIBUTIONS

MEDICAL (DRUGS) (DENTAL)



INTEREST AND SOME TAX PAYMENTS

SOME BUSINESS EXPENSES

DEPENDENTS

+

CASUALTY LOSSES
UNION OR PROFESSIONAL DUES
INVESTMENT AND TAX ADVICE

# Employee's Withholding Allowance Certificate

**The explanatory material below will help you determine your correct number of withholding allowances, and will indicate whether you should complete the new Form W–4 at the bottom of this page.**

### How Many Withholding Allowances May You Claim?

Please use the schedule below to determine the number of allowances you may claim for tax withholding purposes. In determining the number, keep in mind these points: If you are single and hold more than one job, you may not claim the same allowances with more than one employer at the same time; If you are married and both you and your wife or husband are employed, you may not claim the same allowances with your employers at the same time. A nonresident alien other than a resident of Canada, Mexico or Puerto Rico may claim only one personal allowance.

## Figure Your Total Withholding Allowances Below

| | |
|---|---|
| (a) Allowance for yourself—enter 1 | |
| (b) Allowance for your wife (husband)—enter 1 | |
| (c) Allowance for your age—if 65 or over—enter 1 | |
| (d) Allowance for your wife's (husband's) age—if 65 or over—enter 1 | |
| (e) Allowance for blindness (yourself)—enter 1 | |
| (f) Allowance for blindness (wife or husband)—enter 1 | |
| (g) Allowance(s) for dependent(s)—you are entitled to claim an allowance for each dependent you will be able to claim on your Federal income tax return. Do not include yourself or your wife (husband)* | |
| (h) Special withholding allowance—if you have only one job, and do not have a wife or husband who works—enter 1 | |
| (i) Total—add lines (a) through (h) above | |
| *If you do not plan to itemize deductions on your income tax return, enter the number shown on line (i) on line 1, Form W–4 below. Skip lines (j) and (k).* | |
| (j) Allowance(s) for itemized deductions—If you do plan to itemize deductions on your income tax return, enter the number from line 5 of worksheet on back | |
| (k) Total—add lines (i) and (j) above. Enter here and on line 1, Form W–4 below | |

*If you are in doubt as to whom you may claim as a dependent, see the instructions which came with your last Federal income tax return or call your local Internal Revenue Service office.

## See Table and Worksheet on Back if You Plan to Itemize Your Deductions

### Completing New Form W–4

If you find that you are entitled to one or more allowances in addition to those which you are now claiming, please increase your number of allowances by completing the form below and filing with your employer. If the number of allowances you previously claimed decreases, you must file a new Form W–4 within 10 days. (Should you expect to owe more tax than will be withheld, you may use the same form to increase your withholding by claiming fewer or "0" allowances on line 1 or by asking for additional withholding on line 2 or both.)

▽ Give the bottom part of this form to your employer; keep the upper part for your records and information ▽

---

Form W–4
(Rev. Aug. 1972)
Department of the Treasury
Internal Revenue Service

## Employee's Withholding Allowance Certificate

(This certificate is for income tax withholding purposes only; it will remain in effect until you change it.)

Type or print your full name

Your social security number

Home address (Number and street or rural route)

Marital status
☐ Single ☐ Married
(If married but legally separated, or wife (husband) is a nonresident alien, check the single block.)

City or town, State and ZIP code

1 Total number of allowances you are claiming

2 Additional amount, if any, you want deducted from each pay (if your employer agrees) $

I certify that to the best of my knowledge and belief, the number of withholding allowances claimed on this certificate does not exceed the number to which I am entitled.

Signature ▶ Date ▶ 19

## What If You Itemize Deductions?

If you expect to itemize deductions on your income tax return, you may be entitled to claim one or more additional withholding allowances on line (j) on page 1. You may claim one additional withholding allowance for each $750, or fraction of $750, by which you expect your itemized deductions for the year to exceed the amounts shown in columns (A), (B), or (C) below.

| Estimated salaries and wages | Single employees (with one job) (A) | Married employees with one job (wife or husband is not working) (B) | Married employees (both husband and wife working) and employees working in more than one job (C) |
|---|---|---|---|
| Under $8,000 | $1,700 | $1,700 | $1,700 |
| $8,000 – 10,000 | 1,800 | 1,800 | 2,000 |
| 10,000 – 12,000 | 2,200 | 2,200 | 2,700 |
| 12,000 – 15,000 | 2,400 | 2,400 | 2,700 |
| 15,000 – 20,000 | 2,400 | 2,400 | 3,300 |
| 20,000 – 25,000 | 2,400 | 2,400 | 4,000 |
| 25,000 – 30,000 | 2,900 | 2,400 | 4,900 |
| 30,000 – 35,000 | 3,800 | 2,400 | 5,900 |
| 35,000 – 40,000 | 4,900 | 2,700 | 6,900 |
| 40,000 – 45,000 | 6,400 | 3,500 | 7,900 |
| 45,000 – 50,000 | 7,900 | 4,500 | 9,100 |

If your annual salary or wages exceeds $50,000, you may claim one additional withholding allowance for each $750, or fraction of $750, by which your expected itemized deductions will exceed the following: A single employee with one job – 19 percent of annual salary or wages; A married employee with one job whose wife or husband is not working – 13 percent of annual salary or wages; A married employee whose wife or husband is also working or an employee who holds more than one job – 22 percent of the combined or total annual salary or wages.

### Determining Withholding Allowances For Itemized Deductions

The worksheet below will be helpful to you in determining whether your expected itemized deductions entitle you to claim one or more additional withholding allowances.

### Worksheet

| | | | |
|---|---|---|---|
| 1 Total estimated annual salary or wages (from all sources) | 1 | $ | |
| 2 Total expected itemized deductions for the year | | 2 | $ |
| 3 Appropriate amount from column (A), (B), (C) or footnote 1, above | | 3 | |
| 4 Balance. Subtract line 3 from line 2. (If "0" or less, you are not entitled to additional allowance(s) for itemized deductions) | | 4 | $ |

5 If the amount on line 4 is:

| Between | Enter on line 5 | Between | Enter on line 5 | Between | Enter on line 5 |
|---|---|---|---|---|---|
| $0— $750 | 1 | $2,251—$3,000 | 4 | $4,501—$5,250 | 7 |
| 751—1,500 | 2 | 3,001— 3,750 | 5 | 5,251— 6,000 | 8 |
| 1,501—2,250 | 3 | 3,751— 4,500 | 6 | 6,001— 6,750 | 9 |

Note: *If the amount on line 4 is over $6,750 you get 9 allowances, plus 1 allowance for each $750 or fraction thereof by which the amount on line 4 exceeds $6,750. If the balance on line 4 is less than "0," you may be having too little tax withheld. You can generally avoid this by claiming one less allowance (than the total number to which you are entitled) for each $750 by which the estimated deductions on line 2 are less than the amount on line 3.*

5 ▶ Enter this number on line (j), page 1.

☆ U.S. GOVERNMENT PRINTING OFFICE:1973—O-458-178 E.I. 13-288-399

Let's say YOU are starting a new job. You are married and have two children. You are also supporting your 71-year old grandmother. Fill out the W-4 form completely. (top and bottom).

Below is a W-2 form. At the end of the year, or when a worker leaves a job, the employer gives two copies of this form to the worker and sends one copy to the government.

The W-2 form tells the worker how much he or she was paid during the year and how much was deducted from the pay for income taxes and for social security. The worker uses these figures in making out his tax return. The worker must also include one of the two copies with the tax return when he settles up his tax liability with the government.

97–12907645
Sweettooth Bakery, Inc.
2001 Icing Road
Fudge City, N.J. 08801

Type or print EMPLOYER'S Federal identifying number, name, address, and ZIP code above.

**Wage and Tax Statement 1974**

**Copy B** To be filed with employee's **FEDERAL** tax return

| FEDERAL INCOME TAX INFORMATION | | | |
|---|---|---|---|
| 1 Federal income tax withheld | 1,433.00 | 2 Wages, tips, and other compensation | 9,506.00 |

| SOCIAL SECURITY INFORMATION | | | | | |
|---|---|---|---|---|---|
| 3 FICA employee tax withheld | 465.08 | 4 Total FICA wages | | 5 Uncollected employee FICA tax on tips | |

EMPLOYEE'S social security number ▶ 601-59-4750

Jonathan Baker
79 Oven Place
Spatula, N. J. 08800

Type or print EMPLOYEE'S name, address, and ZIP code above.

| OTHER INFORMATION | | | |
|---|---|---|---|
| Was employee covered by a qualified pension plan, etc.? Yes ☐ No ☐ | Contribution to individual employee retirement account | Cost of group term life insurance included in box 2 | Excludable sick pay included in box 2 |

This information is being furnished to the Internal Revenue Service and appropriate State officials.

An "X" in the upper left corner indicates this is a corrected form.

Form **W–2** Department of the Treasury—Internal Revenue Service

Not everyone has to file a tax return. A single person need not file one unless he or she earned at least $2,050 in the previous year (as of 1975); married persons filing jointly need not file one unless together they earned at least $2800 (as of 1975). However, if a person earned less than these amounts and income taxes were withheld from wages, then the person should file a return in order to get a refund of the taxes withheld. Self-employed people must file a return if they earned at least $400 in the year.

There is a short form of the tax return, called 1040A, and a long form, called 1040. You may use the short form provided that all of your income was from wages, salaries, or tips, and you did not receive more than $400 in interest and more than $400 in dividends. If you use the short form, you may not itemize your deductions.

Married couples may file a joint return even if one of them had no income. If both had incomes, they will generally have a smaller tax liability if they file a joint return rather than two separate returns.

The Internal Revenue Service will help anyone prepare his or her tax return. You may visit the nearest IRS office (look in the phone book under U.S. Government), or call up the IRS and they will answer your questions. If you are using the short form (1040A), or even a simple return on the long form (1040), and you are worried that you may not fill in the form correctly, the IRS will compute your tax for you and send you either a refund or a bill for additional taxes due. Just follow the directions on the form.

On the next page is a copy of form 1040A, front and reverse. You are going to make out a tax return. Use your own name and social security number if you have one. (If not, make up a number) The W-2 form that you received from your employer, the Crumb Bakery, stated that the amount of your tax that was withheld was $1090.80 out of a gross pay of $7540.00. The social security tax withheld was $441.09. You received a statement from the Downstate Savings Bank reporting that your savings account earned $47.50 during the year. You are single and have no dependents. You know that your allowable deductions will not add up to very much, and you'll be better off to take the standard deduction (15% here) that the government allows.

Compute your tax on form 1040A using Table 1 on page 166. Is your tax overpaid or underpaid? What is the balance, and will you receive it from the IRS or have to pay it?

Note: You may use even-dollar amounts instead of dollars and cents. Round off your figures to the *nearest whole dollar.* For example, $1090.*80* may be written $1091; $1090.*50* would also be $1091; but $1090.*49* would be $1090.

# Short Form 1040A U.S. Individual Income Tax Return

Department of the Treasury Internal Revenue Service **1974**

Please print or type

Name (If joint return, give first names and initials of both) | Last name

Present home address (Number and street, including apartment number, or rural route)

City, town or post office, State and ZIP code

COUNTY OF RESIDENCE

Your social security number

Spouse's social security no.

Occupation: Yours ▶ Spouse's ▶

## Filing Status (check only one)

1 ☐ Single

2 ☐ Married filing joint return (even if only one had income)

3 ☐ Married filing separately. If spouse is also filing, give spouse's social security number in designated space above and enter full name here ▶

4 ☐ Unmarried Head of Household (See instructions on page 5) ▶

5 ☐ Widow(er) with dependent child (Year spouse died ▶ 19 )

## Exemptions

| | Regular | 65 or over | Blind | Enter number of boxes checked ▶ |
|---|---|---|---|---|
| 6a Yourself | ☐ | ☐ | ☐ | |
| b Spouse | ☐ | ☐ | ☐ | |

c First names of your dependent children who lived with you

Enter number ▶

d Number of other dependents (from line 26) ▶

7 Total exemptions claimed ▶

8 Presidential Election Campaign Fund ▶ Do you wish to designate $1 of your taxes for this fund? Yes ☐ No ☐ If joint return, does your spouse wish to designate $1? Yes ☐ No ☐ **Note:** If you check the "Yes" box(es) it will not increase your tax or reduce your refund.

Attach Copy B of Forms W-2 and Check or Money Order here

| | | | |
|---|---|---|---|
| 9 | Wages, salaries, tips, and other employee compensation. (Attach Forms W-2. If unavailable, see Instructions on page 3.) | 9 | |
| 10a | Dividends ( if over $400, use Form 1040—see instructions ) $ ..... 10b Less Exclusion $ ..... Balance ▶ | 10c | |
| 11 | Interest income (if over $400, use Form 1040) | 11 | |
| 12 | Total (add lines 9, 10c, and 11) **(Adjusted Gross Income)** | 12 | |

- **If you want IRS to figure your tax, skip the rest of this page and see instructions on page 3.**
- **If line 12 is under $10,000, find tax in Tables 1–12 and enter on line 17, on back. Skip lines 13, 14, 15, and 16.**

| | | | |
|---|---|---|---|
| 13 | **If line 12 is $10,000 or more,** enter 15% of line 12 but not more than $2,000 ($1,000 if line 3 checked) | 13 | |
| 14 | Subtract line 13 from line 12 | 14 | |
| 15 | Multiply total number of exemptions claimed on line 7 by $750 | 15 | |
| 16 | Taxable income (subtract line 15 from line 14) (Figure tax on amount on line 16 using Tax Rate Schedule X, Y, or Z, and enter on line 17, on back.) | 16 | |

↑ This is the front of the form

Form 1040A (1974) This is the back of the form ↓ Page 2

| | | | |
|---|---|---|---|
| 17 | Tax, check if from: ☐ Tax Tables 1–12 **OR** ☐ Tax Rate Schedule X, Y, or Z | 17 | |
| 18 | Credit for contributions to candidates for public office (see instructions on page 4) | 18 | |
| 19 | Income tax (subtract line 18 from line 17). If less than zero, enter zero | 19 | |
| 20a | Total Federal income tax withheld (attach Forms W-2 to front) | 20a | |
| b | Excess FICA tax withheld (two or more employers—see instructions on page 4) | b | |
| c | 1974 estimated tax payments (include amount allowed as credit from 1973 return) | c | |
| 21 | Total (add lines 20a, b, and c) | 21 | |
| 22 | If line 19 is larger than line 21, enter **BALANCE DUE IRS** Pay in full with return. Write social security number on check or money order and make payable to Internal Revenue Service ▶ | 22 | |
| 23 | If line 21 is larger than line 19, enter amount **OVERPAID** ▶ | 23 | |
| 24 | Amount of line 23 to be **REFUNDED TO YOU** ▶ | 24 | |
| 25 | Amount of line 23 to be credited on 1975 estimated tax ▶ 25 | | If all of overpayment (line 23) is to be refunded (line 24), make no entry on line 25. |

## Other Dependents

| (a) NAME | (b) Relationship | (c) Months lived in your home. If born or died during year, write B or D. | (d) Did dependent have income of $750 or more? | (e) Amount YOU furnished for dependent's support. If 100% write ALL. | (f) Amount furnished by OTHERS including dependent. |
|---|---|---|---|---|---|
| | | | | $ | $ |

26 Total number of dependents listed in column (a). Enter here and on line 6d ▶

Under penalties of perjury, I declare that I have examined this return, including accompanying schedules and statements, and to the best of my knowledge and belief it is true, correct and complete. Declaration of preparer (other than taxpayer) is based on all information of which he has any knowledge.

Sign here

▶ Your signature Date

▶ Spouse's signature (if filing jointly, BOTH must sign even if only one had income)

▶ Preparer's signature (other than taxpayer) Date

Address (and ZIP Code) Preparer's Emp. Ident. or Soc. Sec. No.

☆ U.S. GOVERNMENT PRINTING OFFICE : 1974—O-548-709 **53-07-33-972**

## NOW . . . .

Look up the tax liability for these people. All are single and claim only one exemption. Then find out how much of a refund is due them or how much additional tax they must pay. (You may round off all figures to the nearest whole dollar when figuring.)

| | Wages | Other Income | Adjusted Gross Income | Tax Liability | Income Tax Withheld | Overpayment | Additional Tax Due |
|---|---|---|---|---|---|---|---|
| J.K. | $6774.95 | Int. $104.59 | | | $845.40 | | |
| L.J. | $9308.48 | Int. 62.25 | | | $1492.00 | | |
| R.N. | $8221.59 | Div. $120 less $100 | | | $1106.90 | | |
| G.F. | $4206.02 | – | | | 329.40 | | |
| X.Z. | $9629.50 | Int. $168.75<br>Div. $80 less $80 | | | $1440.20 | | |

## For persons with incomes under $10,000 who do not itemize deductions on Schedule A, Form 1040.

# 1974 Tax Tables

If you could be claimed as a dependent on your parent's return and line 15 on your Form 1040 includes income other than earned income, do not use the Tax Tables. See Chapter 1.

**Earned income** means wages, salaries, professional fees, etc. for personal services rendered. It does not include compensation for your services that was a distribution of earnings and profits rather than a reasonable allowance for your work for a corporation.

If you engaged in a business in which both personal services and capital produced income, consider as earned income a reasonable allowance for your services, not more than 30 percent of your share of net profits of the business.

The standard deduction and deduction for exemptions have been taken into account in figuring the tax shown in these Tables.

The Tables show the lower tax after taking into account both the percentage standard deduction and the low income allowance except in the case of married people filing separately. For married people filing separate returns, the tables show the tax figured on the percentage standard deduction and on the low income allowance.

Select the Tax Table that covers the total number of exemptions on line 7. On the appropriate table, read down the income columns until you find the line covering the adjusted gross income you entered on line 15. Then read across to the column heading describing your filing status. Enter the tax you find there on line 16.

**Married people filing separate returns:** Choose either the low income allowance or percentage standard deduction to figure your tax. But if one uses the percentage standard deduction, both must use it. If you are married and living apart from your spouse, see Chapter 2 to see if you can be considered "unmarried" for purposes of using the tax tables below.

## Table 1 —Returns claiming ONE exemption (and not itemizing deductions)

| If line 15 (adjusted gross income) is— | | And you are— | | | |
|---|---|---|---|---|---|
| At least | But less than | Single not head of household | Head of household | Married filing separate return claiming— Low income allowance | Married filing separate return claiming— %Standard deduction |
| | | Your tax is— | | | |
| $0 | $875 | $0 | $0 | $0 | $0 |
| 875 | 900 | 0 | 0 | 0 | 1 |
| 900 | 925 | 0 | 0 | 0 | 4 |
| 925 | 950 | 0 | 0 | 0 | 7 |
| 950 | 975 | 0 | 0 | 0 | 10 |
| 975 | 1,000 | 0 | 0 | 0 | 13 |
| 1,000 | 1,025 | 0 | 0 | 0 | 15 |
| 1,025 | 1,050 | 0 | 0 | 0 | 18 |
| 1,050 | 1,075 | 0 | 0 | 0 | 21 |
| 1,075 | 1,100 | 0 | 0 | 0 | 24 |
| 1,100 | 1,125 | 0 | 0 | 0 | 27 |
| 1,125 | 1,150 | 0 | 0 | 0 | 30 |
| 1,150 | 1,175 | 0 | 0 | 0 | 33 |
| 1,175 | 1,200 | 0 | 0 | 0 | 36 |
| 1,200 | 1,225 | 0 | 0 | 0 | 39 |
| 1,225 | 1,250 | 0 | 0 | 0 | 42 |
| 1,250 | 1,275 | 0 | 0 | 0 | 45 |
| 1,275 | 1,300 | 0 | 0 | 0 | 48 |
| 1,300 | 1,325 | 0 | 0 | 0 | 51 |
| 1,325 | 1,350 | 0 | 0 | 0 | 54 |
| 1,350 | 1,375 | 0 | 0 | 0 | 57 |
| 1,375 | 1,400 | 0 | 0 | 0 | 60 |
| 1,400 | 1,425 | 0 | 0 | 2 | 63 |
| 1,425 | 1,450 | 0 | 0 | 5 | 66 |
| 1,450 | 1,475 | 0 | 0 | 9 | 69 |
| 1,475 | 1,500 | 0 | 0 | 12 | 72 |
| 1,500 | 1,525 | 0 | 0 | 16 | 75 |
| 1,525 | 1,550 | 0 | 0 | 19 | 79 |
| 1,550 | 1,575 | 0 | 0 | 23 | 82 |
| 1,575 | 1,600 | 0 | 0 | 26 | 85 |
| 1,600 | 1,625 | 0 | 0 | 30 | 88 |
| 1,625 | 1,650 | 0 | 0 | 33 | 91 |
| 1,650 | 1,675 | 0 | 0 | 37 | 94 |
| 1,675 | 1,700 | 0 | 0 | 40 | 98 |
| 1,700 | 1,725 | 0 | 0 | 44 | 101 |
| 1,725 | 1,750 | 0 | 0 | 47 | 104 |
| 1,750 | 1,775 | 0 | 0 | 51 | 107 |
| 1,775 | 1,800 | 0 | 0 | 54 | 110 |
| 1,800 | 1,825 | 0 | 0 | 58 | 114 |
| 1,825 | 1,850 | 0 | 0 | 61 | 117 |
| 1,850 | 1,875 | 0 | 0 | 65 | 120 |
| 1,875 | 1,900 | 0 | 0 | 68 | 123 |
| 1,900 | 1,925 | 0 | 0 | 72 | 126 |
| 1,925 | 1,950 | 0 | 0 | 76 | 130 |
| 1,950 | 1,975 | 0 | 0 | 79 | 133 |
| 1,975 | 2,000 | 0 | 0 | 83 | 136 |
| 2,000 | 2,025 | 0 | 0 | 87 | 139 |
| 2,025 | 2,050 | 0 | 0 | 91 | 142 |
| 2,050 | 2,075 | 2 | 2 | 94 | 145 |
| 2,075 | 2,100 | 5 | 5 | 98 | 149 |
| 2,100 | 2,125 | 9 | 9 | 102 | 152 |
| 2,125 | 2,150 | 12 | 12 | 106 | 156 |
| 2,150 | 2,175 | 16 | 16 | 109 | 159 |
| 2,175 | 2,200 | 19 | 19 | 113 | 162 |
| 2,200 | 2,225 | 23 | 23 | 117 | 166 |
| 2,225 | 2,250 | 26 | 26 | 121 | 169 |
| 2,250 | 2,275 | 30 | 30 | 124 | 173 |
| 2,275 | 2,300 | 33 | 33 | 128 | 176 |
| 2,300 | 2,325 | 37 | 37 | 132 | 179 |
| 2,325 | 2,350 | 40 | 40 | 136 | 183 |
| 2,350 | 2,375 | 44 | 44 | 139 | 186 |
| 2,375 | 2,400 | 47 | 47 | 143 | 190 |
| 2,400 | 2,425 | 51 | 51 | 147 | 193 |
| 2,425 | 2,450 | 54 | 54 | 151 | 196 |
| 2,450 | 2,475 | 58 | 58 | 155 | 200 |
| 2,475 | 2,500 | 61 | 61 | 159 | 203 |
| 2,500 | 2,525 | 65 | 65 | 163 | 207 |
| 2,525 | 2,550 | 68 | 68 | 167 | 210 |
| 2,550 | 2,575 | 72 | 72 | 171 | 213 |
| 2,575 | 2,600 | 76 | 75 | 175 | 217 |
| 2,600 | 2,625 | 79 | 79 | 179 | 220 |
| 2,625 | 2,650 | 83 | 82 | 183 | 224 |
| 2,650 | 2,675 | 87 | 86 | 187 | 227 |
| 2,675 | 2,700 | 91 | 89 | 191 | 231 |
| 2,700 | 2,725 | 94 | 93 | 195 | 234 |
| 2,725 | 2,750 | 98 | 96 | 199 | 238 |
| $2,750 | $2,775 | $102 | $100 | $203 | $242 |
| 2,775 | 2,800 | 106 | 103 | 207 | 245 |
| 2,800 | 2,825 | 109 | 107 | 211 | 249 |
| 2,825 | 2,850 | 113 | 110 | 215 | 253 |
| 2,850 | 2,875 | 117 | 114 | 219 | 256 |
| 2,875 | 2,900 | 121 | 117 | 223 | 260 |
| 2,900 | 2,925 | 124 | 121 | 227 | 263 |
| 2,925 | 2,950 | 128 | 124 | 231 | 267 |
| 2,950 | 2,975 | 132 | 128 | 236 | 271 |
| 2,975 | 3,000 | 136 | 131 | 240 | 274 |
| 3,000 | 3,050 | 141 | 137 | 248 | 280 |
| 3,050 | 3,100 | 149 | 144 | 255 | 287 |
| 3,100 | 3,150 | 157 | 152 | 263 | 294 |
| 3,150 | 3,200 | 165 | 160 | 272 | 301 |
| 3,200 | 3,250 | 173 | 168 | 280 | 309 |
| 3,250 | 3,300 | 181 | 176 | 289 | 316 |
| 3,300 | 3,350 | 189 | 184 | 297 | 324 |
| 3,350 | 3,400 | 197 | 192 | 306 | 333 |
| 3,400 | 3,450 | 205 | 200 | 315 | 341 |
| 3,450 | 3,500 | 213 | 208 | 324 | 349 |
| 3,500 | 3,550 | 221 | 216 | 334 | 357 |
| 3,550 | 3,600 | 229 | 224 | 343 | 365 |
| 3,600 | 3,650 | 238 | 232 | 353 | 373 |
| 3,650 | 3,700 | 246 | 240 | 362 | 381 |
| 3,700 | 3,750 | 255 | 248 | 372 | 389 |
| 3,750 | 3,800 | 263 | 256 | 381 | 397 |
| 3,800 | 3,850 | 272 | 264 | 391 | 405 |
| 3,850 | 3,900 | 280 | 272 | 400 | 413 |
| 3,900 | 3,950 | 289 | 280 | 410 | 421 |
| 3,950 | 4,000 | 297 | 288 | 419 | 429 |
| 4,000 | 4,050 | 306 | 296 | 429 | 438 |
| 4,050 | 4,100 | 315 | 305 | 438 | 446 |
| 4,100 | 4,150 | 324 | 314 | 448 | 454 |
| 4,150 | 4,200 | 334 | 323 | 457 | 462 |
| 4,200 | 4,250 | 343 | 332 | 467 | 470 |
| 4,250 | 4,300 | 353 | 341 | 476 | 478 |
| 4,300 | 4,350 | 362 | 350 | 486 | 486 |
| 4,350 | 4,400 | 372 | 359 | 495 | 494 |
| 4,400 | 4,450 | 381 | 368 | 505 | 502 |
| 4,450 | 4,500 | 391 | 377 | 514 | 510 |
| 4,500 | 4,550 | 400 | 386 | 524 | 518 |
| 4,550 | 4,600 | 410 | 395 | 533 | 526 |
| 4,600 | 4,650 | 419 | 404 | 543 | 534 |
| 4,650 | 4,700 | 429 | 413 | 552 | 543 |
| 4,700 | 4,750 | 438 | 422 | 562 | 551 |
| 4,750 | 4,800 | 448 | 431 | 571 | 559 |
| 4,800 | 4,850 | 457 | 440 | 581 | 567 |
| 4,850 | 4,900 | 467 | 449 | 590 | 575 |
| 4,900 | 4,950 | 476 | 458 | 600 | 583 |
| 4,950 | 5,000 | 486 | 467 | 609 | 591 |
| 5,000 | 5,050 | 495 | 476 | 619 | 599 |
| 5,050 | 5,100 | 505 | 485 | 628 | 607 |
| 5,100 | 5,150 | 514 | 494 | 638 | 615 |
| 5,150 | 5,200 | 524 | 503 | 647 | 623 |
| 5,200 | 5,250 | 533 | 512 | 657 | 631 |
| 5,250 | 5,300 | 543 | 521 | 666 | 639 |
| 5,300 | 5,350 | 552 | 530 | 676 | 647 |
| 5,350 | 5,400 | 562 | 539 | 685 | 656 |
| 5,400 | 5,450 | 571 | 548 | 696 | 664 |
| 5,450 | 5,500 | 581 | 557 | 707 | 672 |
| 5,500 | 5,550 | 590 | 566 | 718 | 680 |
| 5,550 | 5,600 | 600 | 575 | 729 | 688 |
| 5,600 | 5,650 | 609 | 584 | 740 | 697 |
| 5,650 | 5,700 | 619 | 593 | 751 | 706 |
| 5,700 | 5,750 | 628 | 602 | 762 | 716 |
| 5,750 | 5,800 | 638 | 611 | 773 | 725 |
| 5,800 | 5,850 | 647 | 620 | 784 | 734 |
| 5,850 | 5,900 | 657 | 629 | 795 | 744 |
| 5,900 | 5,950 | 666 | 638 | 806 | 753 |
| 5,950 | 6,000 | 676 | 647 | 817 | 762 |
| 6,000 | 6,050 | 685 | 656 | 828 | 772 |
| 6,050 | 6,100 | 695 | 665 | 839 | 781 |
| 6,100 | 6,150 | 706 | 674 | 850 | 790 |
| 6,150 | 6,200 | 716 | 684 | 861 | 800 |
| 6,200 | 6,250 | 727 | 693 | 872 | 809 |
| $6,250 | $6,300 | $737 | $703 | $883 | $818 |
| 6,300 | 6,350 | 748 | 712 | 894 | 828 |
| 6,350 | 6,400 | 758 | 722 | 905 | 837 |
| 6,400 | 6,450 | 769 | 731 | 916 | 846 |
| 6,450 | 6,500 | 779 | 741 | 927 | 856 |
| 6,500 | 6,550 | 790 | 750 | 938 | 865 |
| 6,550 | 6,600 | 800 | 760 | 949 | 875 |
| 6,600 | 6,650 | 811 | 769 | 960 | 884 |
| 6,650 | 6,700 | 821 | 779 | 971 | 894 |
| 6,700 | 6,750 | 832 | 788 | 982 | 905 |
| 6,750 | 6,800 | 842 | 798 | 993 | 916 |
| 6,800 | 6,850 | 853 | 807 | 1,004 | 927 |
| 6,850 | 6,900 | 863 | 817 | 1,015 | 938 |
| 6,900 | 6,950 | 874 | 826 | 1,026 | 949 |
| 6,950 | 7,000 | 884 | 836 | 1,037 | 960 |
| 7,000 | 7,050 | 895 | 845 | 1,048 | 971 |
| 7,050 | 7,100 | 905 | 855 | 1,059 | 982 |
| 7,100 | 7,150 | 916 | 864 | 1,070 | 993 |
| 7,150 | 7,200 | 926 | 874 | 1,081 | 1,004 |
| 7,200 | 7,250 | 937 | 883 | 1,092 | 1,015 |
| 7,250 | 7,300 | 947 | 893 | 1,103 | 1,026 |
| 7,300 | 7,350 | 958 | 902 | 1,114 | 1,037 |
| 7,350 | 7,400 | 968 | 912 | 1,125 | 1,048 |
| 7,400 | 7,450 | 979 | 921 | 1,136 | 1,059 |
| 7,450 | 7,500 | 989 | 931 | 1,149 | 1,070 |
| 7,500 | 7,550 | 1,000 | 940 | 1,161 | 1,081 |
| 7,550 | 7,600 | 1,010 | 950 | 1,174 | 1,092 |
| 7,600 | 7,650 | 1,021 | 959 | 1,186 | 1,103 |
| 7,650 | 7,700 | 1,031 | 969 | 1,199 | 1,114 |
| 7,700 | 7,750 | 1,042 | 978 | 1,211 | 1,125 |
| 7,750 | 7,800 | 1,052 | 988 | 1,224 | 1,136 |
| 7,800 | 7,850 | 1,063 | 997 | 1,236 | 1,149 |
| 7,850 | 7,900 | 1,073 | 1,007 | 1,249 | 1,161 |
| 7,900 | 7,950 | 1,084 | 1,016 | 1,261 | 1,174 |
| 7,950 | 8,000 | 1,094 | 1,026 | 1,274 | 1,186 |
| 8,000 | 8,050 | 1,105 | 1,035 | 1,286 | 1,199 |
| 8,050 | 8,100 | 1,116 | 1,046 | 1,299 | 1,211 |
| 8,100 | 8,150 | 1,128 | 1,057 | 1,311 | 1,224 |
| 8,150 | 8,200 | 1,140 | 1,068 | 1,324 | 1,236 |
| 8,200 | 8,250 | 1,152 | 1,079 | 1,336 | 1,249 |
| 8,250 | 8,300 | 1,164 | 1,090 | 1,349 | 1,261 |
| 8,300 | 8,350 | 1,176 | 1,101 | 1,361 | 1,274 |
| 8,350 | 8,400 | 1,188 | 1,112 | 1,374 | 1,286 |
| 8,400 | 8,450 | 1,200 | 1,123 | 1,386 | 1,299 |
| 8,450 | 8,500 | 1,212 | 1,134 | 1,399 | 1,311 |
| 8,500 | 8,550 | 1,224 | 1,145 | 1,411 | 1,324 |
| 8,550 | 8,600 | 1,236 | 1,156 | 1,424 | 1,336 |
| 8,600 | 8,650 | 1,248 | 1,167 | 1,436 | 1,349 |
| 8,650 | 8,700 | 1,260 | 1,177 | 1,449 | 1,361 |
| 8,700 | 8,750 | 1,270 | 1,187 | 1,461 | 1,374 |
| 8,750 | 8,800 | 1,280 | 1,196 | 1,474 | 1,386 |
| 8,800 | 8,850 | 1,290 | 1,205 | 1,486 | 1,399 |
| 8,850 | 8,900 | 1,301 | 1,215 | 1,499 | 1,411 |
| 8,900 | 8,950 | 1,311 | 1,224 | 1,511 | 1,424 |
| 8,950 | 9,000 | 1,321 | 1,233 | 1,524 | 1,436 |
| 9,000 | 9,050 | 1,331 | 1,243 | 1,536 | 1,449 |
| 9,050 | 9,100 | 1,341 | 1,252 | 1,549 | 1,461 |
| 9,100 | 9,150 | 1,352 | 1,261 | 1,561 | 1,474 |
| 9,150 | 9,200 | 1,362 | 1,271 | 1,574 | 1,486 |
| 9,200 | 9,250 | 1,372 | 1,280 | 1,586 | 1,499 |
| 9,250 | 9,300 | 1,382 | 1,289 | 1,599 | 1,511 |
| 9,300 | 9,350 | 1,392 | 1,299 | 1,611 | 1,524 |
| 9,350 | 9,400 | 1,403 | 1,308 | 1,624 | 1,536 |
| 9,400 | 9,450 | 1,413 | 1,317 | 1,637 | 1,549 |
| 9,450 | 9,500 | 1,423 | 1,327 | 1,651 | 1,561 |
| 9,500 | 9,550 | 1,433 | 1,336 | 1,665 | 1,574 |
| 9,550 | 9,600 | 1,443 | 1,348 | 1,679 | 1,586 |
| 9,600 | 9,650 | 1,454 | 1,355 | 1,693 | 1,599 |
| 9,650 | 9,700 | 1,464 | 1,364 | 1,707 | 1,611 |
| 9,700 | 9,750 | 1,474 | 1,374 | 1,721 | 1,624 |
| 9,750 | 9,800 | 1,484 | 1,383 | 1,735 | 1,637 |
| 9,800 | 9,850 | 1,494 | 1,392 | 1,749 | 1,651 |
| 9,850 | 9,900 | 1,505 | 1,402 | 1,763 | 1,665 |
| 9,900 | 9,950 | 1,515 | 1,411 | 1,777 | 1,679 |
| 9,950 | 10,000 | 1,525 | 1,420 | 1,791 | 1,693 |

AS AN EMPLOYEE,
YOU SHOULD KNOW ABOUT WAGES AND TAXES.

Please answer the following questions.

1. Why should an employee know how his pay is figured?

2. What are the two most important deductions that are made from a worker's pay?

   (a)

   (b)

3. What is F. I. C. A. and to whom is this money sent?

   (a)

   (b)

4. What is the withholding tax, and to whom is this money sent?

   (a)

   (b)

5. What is the difference between tax form #1040-A and #1040?

6. Who can use form 1040-A?

7. What records should be kept by an employee for income-tax purposes?

   (a)

   (b)

   (c)

   (d)

8. When does it pay to itemize deductions?

9. What must you do before you send in your tax return?

10. If a person earned only $1800 one year, under what conditions would he or she file an income tax return?

Weldon Nutcake worked as a shop foreman at the Floweree Bakeshop back in 1974. He received the following W-2 form from his employer in January of 1975.

64 – 1234567
Floweree Bakeshop
123 Honeysuckle Lane
Icing, N. J. 08122

**Wage and Tax Statement 1974**

**Copy B** To be filed with employee's **FEDERAL** tax return

Type or print EMPLOYER'S Federal identifying number, name, address, and ZIP code above.

| FEDERAL INCOME TAX INFORMATION | | | | SOCIAL SECURITY INFORMATION | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Federal income tax withheld | 2 | Wages, tips, and other compensation | 3 | FICA employee tax withheld | 4 | Total FICA wages | 5 | Uncollected employee FICA tax on tips |
| | 1587.60 | | 14,100.29 | | 824.85 | | | | |

EMPLOYEE'S social security number ► 999–00–1111

Weldon Nutcake
113 Dumpling Road
Cutting Corners, N.J. 08259

Type or print EMPLOYEE'S name, address, and ZIP code above.

| OTHER INFORMATION | | | |
|---|---|---|---|
| Was employee covered by a qualified pension plan, etc.? Yes ☐ No ☒ | Contribution to individual employee retirement account | Cost of group term life insurance included in box 2 | Excludable sick pay included in box 2 |

This information is being furnished to the Internal Revenue Service and appropriate State officials.

An "X" in the upper left corner indicates this is a corrected form.

Form **W–2** Department of the Treasury—Internal Revenue Service

Weldon figured that his deductions would come to over 15% of his income, so he used the long form of the tax return – 1040.

Your instructor will go through Weldon's tax return with the class to see what each line really means.

# Form 1040 US Department of the Treasury—Internal Revenue Service Individual Income Tax Return 1974

For the year January 1–December 31, 1974, or other taxable year beginning ..... 1974, ending ..... 19.....

Please print or type

Name (If joint return, give first names and initials of both): Weldon and Cupcake | Last name: Nutcake

Present home address (Number and street, including apartment number, or rural route): 113 Dumpling Road

City, town or post office, State and ZIP code: Cutting Corners, N.J. 08859

COUNTY OF RESIDENCE: Peel

Your social security number: 999 : 11 : 1111

Spouse's social security no.: 888 : 01 : 2222

Occupation: Yours ► Baker; Spouse's ► Housewife

## Filing Status (check only one)

1 ☐ Single
2 ☒ Married filing joint return (even if only one had income)
3 ☐ Married filing separately. If spouse is also filing give spouse's social security number in designated space above and enter full name here ►
4 ☐ Unmarried Head of Household (See instructions on page 5) ►
5 ☐ Widow(er) with dependent child (Year spouse died ► 19 )

## Exemptions

| | Regular | 65 or over | Blind | |
|---|---|---|---|---|
| 6a Yourself | ☒ | ☐ | ☐ | Enter number of boxes checked ► 2 |
| b Spouse | ☒ | ☐ | ☐ | |

c First names of your dependent children who lived with you: Sugar Raisin — Enter number ► 2

d Number of other dependents (from line 27) ► –

7 Total exemptions claimed ► 4

8 Presidential Election Campaign Fund: Do you wish to designate $1 of your taxes for this fund? ☒ Yes ☐ No. If joint return, does your spouse wish to designate $1? ☒ Yes ☐ No. Note: If you check the "Yes" box(es) it will not increase your tax or reduce your refund.

Please attach Copy B of Forms W-2 here

## Income

| | | | |
|---|---|---|---|
| 9 | Wages, salaries, tips, and other employee compensation (Attach Forms W-2. If unavailable, see instructions on page 3.) | 9 | 14,100 – |
| 10a | Dividends (See instructions on pages 6 and 13) $ 225. – 10b Less exclusion $ 200. –, Balance ► (If gross dividends and other distributions are over $400, list in Part I of Schedule B.) | 10c | 25 – |
| 11 | Interest income. [If $400 or less, enter total without listing in Schedule B. If over $400, enter total and list in Part II of Schedule B.] | 11 | 72 – |
| 12 | Income other than wages, dividends, and interest (from line 38) | 12 | |
| 13 | Total (add lines 9, 10c, 11, and 12) | 13 | 14,197 – |
| 14 | Adjustments to income (such as "sick pay," moving expenses, etc. from line 43) | 14 | |
| 15 | Subtract line 14 from line 13 (adjusted gross income) | 15 | 14,197 – |

- If you do not itemize deductions and line 15 is under $10,000, find tax in Tables and enter on line 16.
- If you itemize deductions or line 15 is $10,000 or more, go to line 44 to figure tax.
- CAUTION. If you have unearned income and can be claimed as a dependent on your parent's return, check here ► ☐ and see instructions on page 7.

## Tax, Payments and Credits

| | | | |
|---|---|---|---|
| 16 | Tax, check if from: ☐ Tax Tables 1–12 ☒ Tax Rate Schedule X, (Y) or Z ☐ Schedule D ☐ Schedule G OR ☐ Form 4726 | 16 | 1602 – |
| 17 | Total credits (from line 54) | 17 | |
| 18 | Income tax (subtract line 17 from line 16) | 18 | |
| 19 | Other taxes (from line 61) | 19 | |
| 20 | Total (add lines 18 and 19) | 20 | 1602 – |
| 21a | Total Federal income tax withheld (attach Forms W-2 or W-2P to front) — 21a: 1588 – | | |
| b | 1974 estimated tax payments (include amount allowed as credit from 1973 return) — b: | | |
| c | Amount paid with Form 4868, Application for Automatic Extension of Time to File U.S. Individual Income Tax Return — c: | | |
| d | Other payments (from line 65) — d: | | |
| 22 | Total (add lines 21a, b, c, and d) | 22 | 1588 – |

Pay amount on line 23 in full with this return. Write social security number on check or money order and make payable to Internal Revenue Service.

Please attach Check or Money Order here

## Balance Due or Refund

| | | | |
|---|---|---|---|
| 23 | If line 20 is larger than line 22, enter BALANCE DUE IRS ► (Check here ► ☐, if Form 2210, Form 2210F, or statement is attached. See instructions on page 7.) | 23 | 14 – |
| 24 | If line 22 is larger than line 20, enter amount OVERPAID ► | 24 | |
| 25 | Amount of line 24 to be REFUNDED TO YOU ► | 25 | |
| 26 | Amount of line 24 to be credited on 1975 estimated tax. ► 26 | | If all of overpayment (line 24) is to be refunded (line 25), make no entry on line 26. |

## Sign here

Under penalties of perjury, I declare that I have examined this return, including accompanying schedules and statements, and to the best of my knowledge and belief it is true, correct, and complete. Declaration of preparer (other than taxpayer) is based on all information of which he has any knowledge.

► Weldon Nutcake — Your signature — Date 2/23/75

► Cupcake Nutcake — Spouse's signature (if filing jointly, BOTH must sign even if only one had income) — Date 2/23/75

► Preparer's signature (other than taxpayer) — Date

Address (and ZIP Code) — Preparer's Emp. Identif. or Soc. Sec. No.

# Form 1040, Reverse Side



**Other Dependents**

| (a) NAME | (b) Relationship | (c) Months lived in your home. If born or died during year, write B or D. | (d) Did dependent have income of $750 or more? | (e) Amount YOU furnished for dependent's support. If 100% write ALL. | (f) Amount furnished by OTHERS including dependent. |
|---|---|---|---|---|---|
| | | | | $ | $ |

27 Total number of dependents listed in column (a). Enter here and on line 6d ▶

## Part I Income other than Wages, Dividends, and Interest

| | | | |
|---|---|---|---|
| 28 | Business income or (loss) (attach Schedule C) | 28 | |
| 29 | Net gain or (loss) from sale or exchange of capital assets (attach Schedule D) | 29 | |
| 30 | Net gain or (loss) from Supplemental Schedule of Gains and Losses (attach Form 4797) | 30 | |
| 31 | Pensions, annuities, rents, royalties, partnerships, estates or trusts, etc. (attach Schedule E) | 31 | |
| 32 | Farm income or (loss) (attach Schedule F) | 32 | |
| 33 | Fully taxable pensions and annuities (not reported on Schedule E—see instructions on page 8) | 33 | |
| 34 | 50% of capital gain distributions (not reported on Schedule D—see instructions on page 8) | 34 | |
| 35 | State income tax refunds (does not apply if refund is for year in which you took the standard deduction—others see instructions on page 8) | 35 | |
| 36 | Alimony received | 36 | |
| 37 | Other (state nature and source—see instructions on page 8) ▶ | 37 | |
| 38 | Total (add lines 28, 29, 30, 31, 32, 33, 34, 35, 36, and 37). Enter here and on line 12 ▶ | 38 | |

## Part II Adjustments to Income

| | | | |
|---|---|---|---|
| 39 | "Sick pay." (From Forms W-2 and W-2P. If not shown on Forms W-2 or W-2P, attach Form 2440 or statement.) | 39 | |
| 40 | Moving expense (attach Form 3903) | 40 | |
| 41 | Employee business expense (attach Form 2106 or statement) | 41 | |
| 42 | Payments as a self-employed person to a retirement plan, etc.—see instructions on page 9 | 42 | |
| 43 | Total adjustments (add lines 39, 40, 41, and 42). Enter here and on line 14 ▶ | 43 | |

## Part III Tax Computation (Do not use this part if you use Tax Tables 1–12 to find your tax.)

| | | | |
|---|---|---|---|
| 44 | Adjusted gross income (from line 15) | 44 | 14,197 – |
| 45 | (a) If you itemize deductions, check here ▶ ☐ and enter total from Schedule A, line 41 and attach Schedule A | 45 | 2,193 – |
| | (b) If you do not itemize deductions, check here ▶ ☐ and enter 15% of line 44, but do NOT enter more than $2,000. ($1,000 if line 3 checked) | 46 | 12,004 – |
| 46 | Subtract line 45 from line 44 | 47 | 3,000 – |
| 47 | Multiply total number of exemptions claimed on line 7, by $750 | 48 | 9,004 – |
| 48 | Taxable income. Subtract line 47 from line 46 | | |

(Figure your tax on the amount on line 48 by using Tax Rate Schedule X, Y, or Z, or if applicable, the alternative tax from Schedule D, Income averaging from Schedule G, or maximum tax from Form 4726.) Enter tax on line 16.

## Part IV Credits

| | | | |
|---|---|---|---|
| 49 | Retirement income credit (attach Schedule R) | 49 | |
| 50 | Investment credit (attach Form 3468) | 50 | |
| 51 | Foreign tax credit (attach Form 1116) | 51 | |
| 52 | Credit for contributions to candidates for public office—see instructions on page 9 | 52 | |
| 53 | Work Incentive (WIN) credit (attach Form 4874) | 53 | |
| 54 | Total credits (add lines 49, 50, 51, 52, and 53). Enter here and on line 17 ▶ | 54 | |

## Part V Other Taxes

| | | | |
|---|---|---|---|
| 55 | Self-employment tax (attach Schedule SE) | 55 | |
| 56 | Tax from recomputing prior-year investment credit (attach Form 4255) | 56 | |
| 57 | Tax from recomputing prior-year Work Incentive (WIN) credit (attach schedule) | 57 | |
| 58 | Minimum tax. Check here ▶ ☐, if Form 4625 is attached | 58 | |
| 59 | Social security tax on tip income not reported to employer (attach Form 4137) | 59 | |
| 60 | Uncollected employee social security tax on tips (from Forms W-2) | 60 | |
| 61 | Total (add lines 55, 56, 57, 58, 59, and 60). Enter here and on line 19 ▶ | 61 | |

## Part VI Other Payments

| | | | |
|---|---|---|---|
| 62 | Excess FICA tax withheld (two or more employers—see instructions on page 9) | 62 | |
| 63 | Credit for Federal tax on special fuels, nonhighway gasoline and lubricating oil (attach Form 4136) | 63 | |
| 64 | Credit from a Regulated Investment Company (attach Form 2439) | 64 | |
| 65 | Total (add lines 62, 63, and 64). Enter here and on line 21d ▶ | 65 | |

**Foreign Accounts**

Did you, at any time during the taxable year, have any interest in or signature or other authority over a bank, securities, or other financial account in a foreign country (except in a U.S. military banking facility operated by a U.S. financial institution)? ▶ ☐ Yes ☒ No

If "Yes," attach Form 4683. (For definitions, see Form 4683.)

☆ U.S. GOVERNMENT PRINTING OFFICE : 1974—O-540-283 E.T. 13-3687299

# Schedules A&B—Itemized Deductions AND Dividend and Interest Income

(Form 1040)

Department of the Treasury
Internal Revenue Service

▶ Attach to Form 1040. ▶ See Instructions for Schedules A and B (Form 1040).

**1974**

Name(s) as shown on Form 1040: Weldon and Cupcake Nutcake

Your social security number: 999 | 00 | 1111

## Schedule A—Itemized Deductions (Schedule B on back)

### Medical and Dental Expenses (not compensated by insurance or otherwise) (See instructions on page 10.)

| | | |
|---|---|---|
| 1 One half (but not more than $150) of insurance premiums for medical care. (Be sure to include in line 10 below) | 150 | - |
| 2 Medicine and drugs | 178 | - |
| 3 Enter 1% of line 15, Form 1040 | 142 | - |
| 4 Subtract line 3 from line 2. Enter difference (if less than zero, enter zero) | 36 | - |
| 5 Enter balance of insurance premiums for medical care not entered on line 1 | 168 | - |
| 6 Enter other medical and dental expenses: | | |
| a Doctors, dentists, nurses, etc. | 232 | - |
| b Hospitals | | |
| c Other (Itemize—include hearing aids, dentures, eyeglasses, transportation, etc.) ▶ Eyeglasses | 45 | - |
| Transportation | 7 | - |
| 7 Total (add lines 4, 5, 6a, b, and c) | 488 | - |
| 8 Enter 3% of line 15, Form 1040 | 426 | - |
| 9 Subtract line 8 from line 7 (if less than zero, enter zero) | 62 | - |
| 10 Total (add lines 1 and 9). Enter here and on line 35 ▶ | 212 | - |

### Taxes (See instructions on page 10.)

| | | |
|---|---|---|
| 11 State and local income | | |
| 12 Real estate | 884 | - |
| 13 State and local gasoline (see gas tax tables) | 68 | - |
| 14 General sales (see sales tax tables) | 130 | - |
| 15 Personal property | | |
| 16 Other (Itemize) ▶ | | |
| 17 Total (add lines 11, 12, 13, 14, 15, and 16). Enter here and on line 36 ▶ | 1082 | - |

### Interest Expense (See instructions on page 11.)

| | | |
|---|---|---|
| 18 Home mortgage | 411 | - |
| 19 Other (Itemize) ▶ | | |
| Installment purchases | 24 | - |
| 20 Total (add lines 18 and 19). Enter here and on line 37 ▶ | 435 | - |

### Contributions (See instructions on page 11 for examples.)

| | | |
|---|---|---|
| 21 a Cash contributions for which you have receipts, cancelled checks, etc. | 86 | - |
| b Other cash contributions. List donees and amounts. ▶ | | |
| United Church of Peel County | 70 | - |
| 22 Other than cash (see instructions on page 11 for required statement) | | |
| 23 Carryover from prior years | | |
| 24 Total contributions (add lines 21a, b, 22, and 23). Enter here and on line 38 ▶ | 156 | - |

### Casualty or Theft Loss(es) (See instructions on page 12.)

Note: *If you had* **more than one loss,** *omit lines 25 through 28 and see instructions on page 12 for guidance.*

| | | |
|---|---|---|
| 25 Loss before insurance reimbursement | | |
| 26 Insurance reimbursement | | |
| 27 Subtract line 26 from line 25. Enter difference (if less than zero, enter zero) | | |
| 28 Enter $100 or amount on line 27, whichever is smaller | | |
| 29 Casualty or theft loss (subtract line 28 from line 27). Enter here and on line 39 ▶ | | |

### Miscellaneous Deductions (See instructions on page 12.)

| | | |
|---|---|---|
| 30 Alimony paid | | |
| 31 Union dues | 150 | - |
| 32 Expenses for child and dependent care services (attach Form 2441) | | |
| 33 Other (Itemize) ▶ | | |
| Work uniforms and shoes | 158 | - |
| 34 Total (add lines 30, 31, 32, and 33). Enter here and on line 40 ▶ | 308 | - |

### Summary of Itemized Deductions — A

| | | |
|---|---|---|
| 35 Total medical and dental—line 10 | 212 | - |
| 36 Total taxes—line 17 | 1082 | - |
| 37 Total interest—line 20 | 435 | - |
| 38 Total contributions—line 24 | 156 | - |
| 39 Casualty or theft loss(es)—line 29 | | |
| 40 Total miscellaneous—line 34 | 308 | - |
| 41 Total deductions (add lines 35, 36, 37, 38, 39, and 40). Enter here and on Form 1040, line 45 ▶ | 2193 | - |

**SCHEDULE Y—Married Taxpayers and Certain Widows and Widowers**

**If you are a married person living apart** from your spouse, see page 5 of the instructions to see if you can be considered to be "unmarried" for purposes of using Schedule X or Z.

Married Taxpayers Filing Joint Returns and Certain Widows and Widowers (See page 5)

| If the amount on Form 1040, line 48, is: | | Enter on Form 1040, line 16: | |
|---|---|---|---|
| Not over $1,000 | | 14% of the amount on line 48. | |
| Over— | But not over— | | of excess over— |
| $1,000 | $2,000 | $140+15% | $1,000 |
| $2,000 | $3,000 | $290+16% | $2,000 |
| $3,000 | $4,000 | $450+17% | $3,000 |
| $4,000 | $8,000 | $620+19% | $4,000 |
| $8,000 | $12,000 | $1,380+22% | $8,000 |
| $12,000 | $16,000 | $2,260+25% | $12,000 |
| $16,000 | $20,000 | $3,260+28% | $16,000 |
| $20,000 | $24,000 | $4,380+32% | $20,000 |
| $24,000 | $28,000 | $5,660+36% | $24,000 |
| $28,000 | $32,000 | $7,100+39% | $28,000 |
| $32,000 | $36,000 | $8,660+42% | $32,000 |
| $36,000 | $40,000 | $10,340+45% | $36,000 |
| $40,000 | $44,000 | $12,140+48% | $40,000 |
| $44,000 | $52,000 | $14,060+50% | $44,000 |
| $52,000 | $64,000 | $18,060+53% | $52,000 |
| $64,000 | $76,000 | $24,420+55% | $64,000 |
| $76,000 | $88,000 | $31,020+58% | $76,000 |
| $88,000 | $100,000 | $37,980+60% | $88,000 |
| $100,000 | $120,000 | $45,180+62% | $100,000 |
| $120,000 | $140,000 | $57,580+64% | $120,000 |
| $140,000 | $160,000 | $70,380+66% | $140,000 |
| $160,000 | $180,000 | $83,580+68% | $160,000 |
| $180,000 | $200,000 | $97,280+69% | $180,000 |
| $200,000 | | $110,980+70% | $200,000 |

Married Taxpayers Filing Separate Returns

| If the amount on Form 1040, line 48, is: | | Enter on Form 1040, line 16: | |
|---|---|---|---|
| Not over $500 | | 14% of the amount on line 48. | |
| Over— | But not over— | | of excess over— |
| $500 | $1,000 | $70+15% | $500 |
| $1,000 | $1,500 | $145+16% | $1,000 |
| $1,500 | $2,000 | $225+17% | $1,500 |
| $2,000 | $4,000 | $310+19% | $2,000 |
| $4,000 | $6,000 | $690+22% | $4,000 |
| $6,000 | $8,000 | $1,130+25% | $6,000 |
| $8,000 | $10,000 | $1,630+28% | $8,000 |
| $10,000 | $12,000 | $2,190+32% | $10,000 |
| $12,000 | $14,000 | $2,830+36% | $12,000 |
| $14,000 | $16,000 | $3,550+39% | $14,000 |
| $16,000 | $18,000 | $4,330+42% | $16,000 |
| $18,000 | $20,000 | $5,170+45% | $18,000 |
| $20,000 | $22,000 | $6,070+48% | $20,000 |
| $22,000 | $26,000 | $7,030+50% | $22,000 |
| $26,000 | $32,000 | $9,030+53% | $26,000 |
| $32,000 | $38,000 | $12,210+55% | $32,000 |
| $38,000 | $44,000 | $15,510+58% | $38,000 |
| $44,000 | $50,000 | $18,990+60% | $44,000 |
| $50,000 | $60,000 | $22,590+62% | $50,000 |
| $60,000 | $70,000 | $28,790+64% | $60,000 |
| $70,000 | $80,000 | $35,190+66% | $70,000 |
| $80,000 | $90,000 | $41,790+68% | $80,000 |
| $90,000 | $100,000 | $48,590+69% | $90,000 |
| $100,000 | | $55,490+70% | $100,000 |

*Weldon's deductions added up to $2193. How much (if anything) did Weldon save by itemizing his deductions? (Remember that the standard deduction was 15%.)*